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Chronic Pain Management

Service Delivery and Evaluation

In partial fulfilment for the award of D.Psych

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Chapter 1.

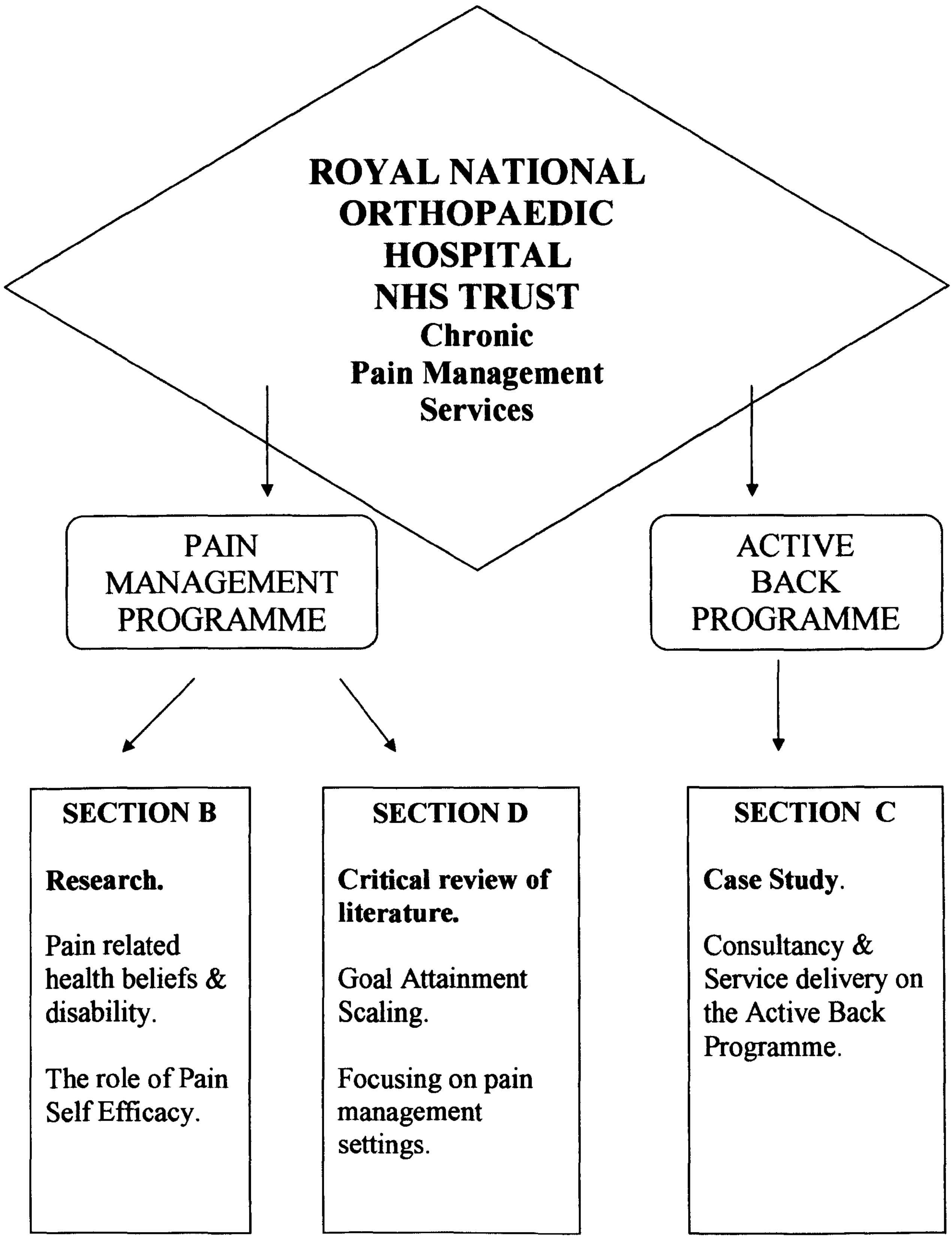
Section A. Introduction

This work will reflect the clinical practice and experience of the current author. The work is structured around this and a further three sections: empirical research into pain related disability and pain self efficacy; professional practice describing my role on the Active Back Programme and a critical review of the literature on Goal Attainment Scaling.

I am a chartered health psychologist working in a specialist National Health Service orthopaedic hospital. This work will draw on my experience over the past seven years. My duties include delivering individual and group cognitive behavioural therapy sessions, service evaluation and development. I provide clinical leadership and expertise within chronic pain rehabilitation for two in-patient programmes. This work will draw on both programmes: the empirical research will use data from the Pain Management Programme, and the professional practice will describe how I developed and deliver my contribution on the Active Back programme. Goal Attainment Scaling is used as an outcome and evaluation tool on the Pain Management Programme. Section D is a critical review of the Goal Attainment scaling literature

To aid clarity, Figure 1 shows the structure of this work and how Sections B, C and D relate to my work and the different programmes within the Royal National Orthopaedic Hospital.

Figure 1. Structure of Thesis relating to Pain Management Services at the Royal National Orthopaedic Hospital



There will now follow a summary of sections B, C and D, which will include reference to the aims and objectives of each.

Section B.

Pain Related Health Beliefs and Disability – the role of Pain Self-Efficacy.

Exploring disability in chronic pain patients: the mediating effects of pain beliefs on disability

Section B is introduced by descriptions of chronic pain and disability. There has been increasing interest in the biopsychosocial model of pain related disability. First described by Turk and Rudy (1992) this model focuses less on the medical model of diagnosis of symptoms and medical treatment, and recognises the role of psychological and social factors such as health beliefs and familial influences.
Main and Spanswick (2000) describe chronic pain disability as psychologically mediated and present a seven stage model. Within this model is an emphasis on the role of health related beliefs, and in particular, increased attention in self efficacy.

First described by Bandura (1977) self efficacy can be considered as the confidence one has about capability to achieve a desired outcome. Section B also reviews the instruments used to measure health beliefs and pain related disability beliefs. The Pain Self Efficacy Questionnaire (PSEQ) (Nicholas 1989) is such a measure which the current author introduced on the pain management and rehabilitation programmes at the Royal National Orthopaedic Hospital. A review of the literature found sparse psychometric evaluation of the PSEQ and one aim of this current study was to contribute to that literature. Further aims of the empirical research were to establish how the PSEQ related to other outcome measures of mood, disability and pain, particularly if pain self efficacy predicted pain related disability. Finally, the study also aimed to test the clinical sensitivity of the PSEQ.

The participants in this study were all admitted for a three week programme of pain management or rehabilitation.

The measures were administered on three occasions: at assessment (Time 1), three months follow up (Time 2) and twelve months follow up (Time 3). Support was found for the reliability and validity of the PSEQ. Multiple regression established pain self efficacy to be the strongest and most consistent significant predictor of pain related disability. Support was found for using the PSEQ as a sensitive outcome measure able to discriminate change on pain management programmes. The results are discussed in light of previous research evaluating the PSEQ and how the PSEQ relates to Bandura's (1977) original description of self efficacy.

Section C. Case Study

Consultancy and Service Delivery on the Active Back Programme

Section C is a case study on the current author's contribution to the Active Back Programme (ABP) – a three week residential pain management programme aimed at patients less disabled than patients attending the programmes mentioned earlier. Section C begins with a description of the ABP structure and acceptance criteria. The ABP is a cognitive behavioural group based intervention with only one session delivered individually. This group based approach is discussed in light of a theoretical background advocating group therapy in pain management settings.

The majority of Section C describes the role and contribution of the current author to the ABP. The ABP has been offering pain management for over fifteen years and traditionally delivered by physiotherapists and occupational therapists. The emphasis has previously focussed on functional restoration and improved physical fitness. The lack of formal psychology input reflected a lack of resources rather than a belief it was not needed. Patients were regularly raising issues and concerns that existing staff felt ill-equipped to manage. There was also recognition that maladaptive cognitions were not being sufficiently challenged. The current author was approached and asked to consider contributing to the ABP due to his experience of service delivery on the Pain Management and Rehabilitation programmes at the Royal National Orthopaedic Hospital. Physiotherapy and occupational therapy colleagues on the ABP worked across the other programmes and were familiar with his work.

Discussions with colleagues and patients on the ABP helped to determine what was needed and identified the key functions as service delivery, evaluation and development. A list of suitable topics for group therapy was prepared. Funding was sought and approved from the hospital's management and six one hour group sessions were designed, together with supplementary written materials to be handed out to patients.

The first challenge was to explain the role of a psychologist to patients as anecdotal evidence had suggested that psychology input and involvement can be initially greeted with scepticism or suspicion. Some patients will make the erroneous assumption that the psychologist' role is to diagnose psychopathology or to establish the veracity of the pain complaint. Instead, the focus is on the sequelae of chronic pain such as frustration, anxiety and depression. Also of interest are the barriers to improvement and patients can readily identify with such issues as over-activity or fear of exacerbating pain.

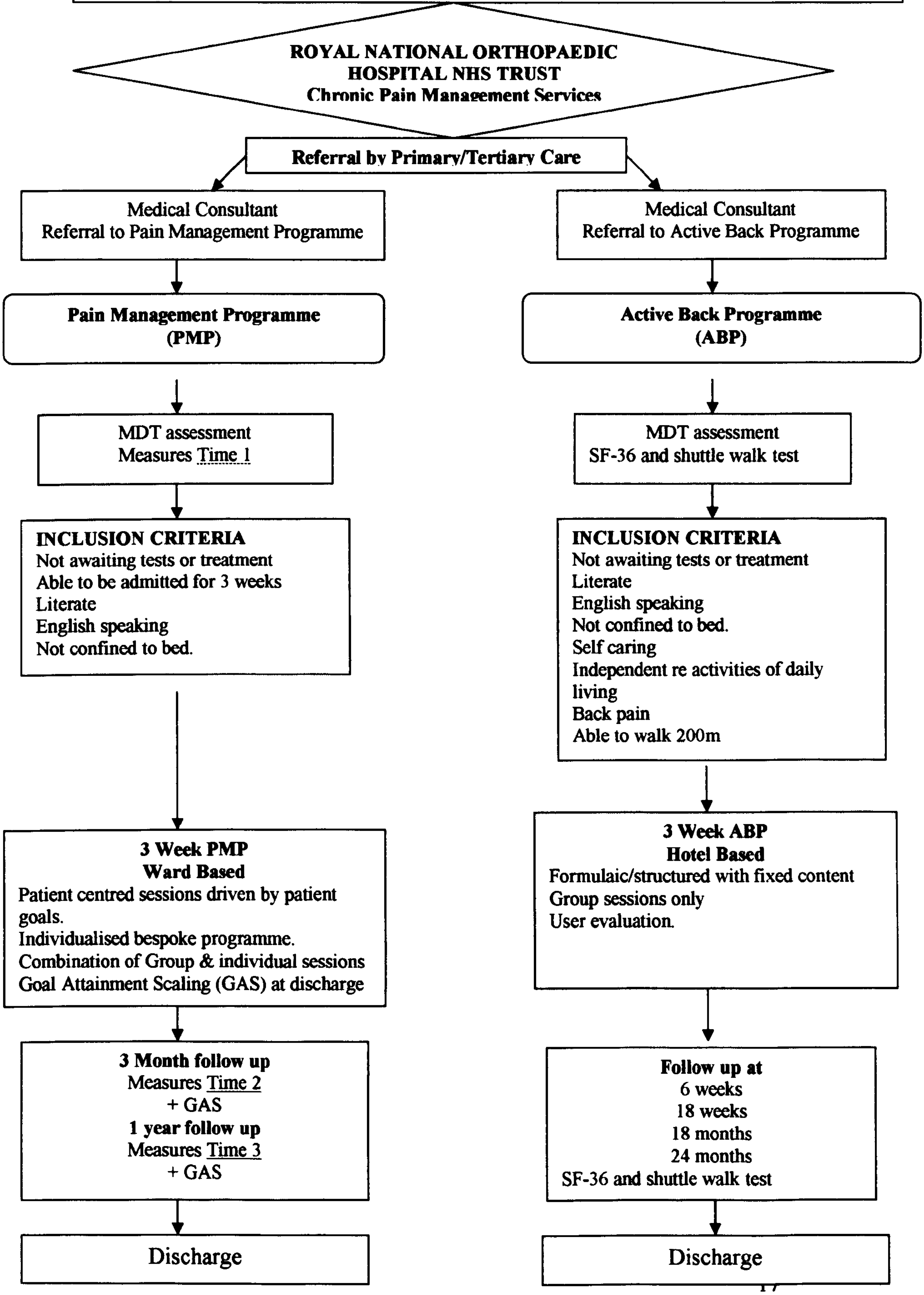
A description is provided in Section C of the group therapy sessions delivered by the current author. These sessions focus on 'Understanding Pain', 'Managing Stress', 'Managing Mood', 'Assertiveness', 'Family and Friends' and 'Maintenance Strategies'. As a result of the evaluation, a further session was designed, 'Learning to Change' as many patients found the prospect of changing both a challenging and threatening experience.

Prior to the current author joining the ABP team, no patient evaluation of the programme had been undertaken, so questionnaires were constructed to enable patients to provide feedback on every session. Patients are encouraged to rate the usefulness and quality of delivery for each session. Patients are also asked to list those sessions found to be most relevant and least helpful. Overall ratings of the programme and group cohesion are also collected. Ongoing analyses suggest exercise and stretch sessions are most useful, with educational / discussion sessions most challenging. Findings from the evaluation have led to changes to the structure and content of the programme, including new sessions being introduced and rewriting of the supporting literature given to patients.

Expanding the discussion on programme development, the current author has initiated a number of in-service training sessions for the therapy team including 'Effective Communication' and 'Dealing with Challenging Situations'. Therapy colleagues are also supported in multi-disciplinary team meetings and encouraged to discuss difficult situations that occur during a session. Working on a pain management team is both rewarding and challenging, and it is essential that colleagues support one another and present a consistent model of therapeutic change to the patients. Problems can occur during therapy sessions and examples are also discussed in Section B. In-service discussion of these problems, together with reflection on findings from the evaluation has led to reflexive practice and improvements to service delivery.

Figure 2 distinguishes the patient pathways of the Pain Management Programme (researched in Section B) and the Active Back Programme (described in Section C).

Figure 2.Process Map detailing patient pathways distinguishing Pain Management and Active Back Programmes



Section D Critical review of literature

Goal Attainment Scaling with focus on Pain Management Settings

This section critically reviews Goal Attainment Scaling (GAS) with an emphasis on its application in pain management settings. Section D is introduced by a description of the historical development and conceptual background of GAS. First described by Kirusek and Sherman (1968) GAS was originally used to evaluate mental health programmes. During the early part of the 1970s GAS became popular in other settings such as education, business and politics. By the latter part of the 1970s, some clinicians were reporting GAS to have a therapeutic effect. Early concerns focussed on questioning the psychometric properties of GAS which some argue have remained.

The process of scaling a goal is described using an example drawn from the current author's clinical practice. Problems can occur when scaling a goal and these concerns are explored and precede a discussion on the psychometric evaluation of GAS.

The main concerns with using GAS appear to be centred around its properties as an outcome and evaluation measure. A GAS sheet is individualised, has no fixed content and therefore not standardised so cannot be considered a psychometric measure in the usual sense. Although that perceived weakness is conversely a strength as a completed goal sheet will capture the patient's individual circumstances. It could be argued that in order to provide that richness of data, psychometric merit is attenuated.

An extensive search of the literature revealed two critical reviews by Cytrynbaum and colleagues (1979) and Hurn, Kneebone and Cropley (2006). Although the former review described GAS as the "most popular" outcome tool in human sciences, Cytrynbaum, Ginath, Birdwell et al (1979) go on to raise concerns about how GAS is used and how it deviates from the original description by Kiresuk and Sherman (1968). These concerns include the training and competency of GAS users. Cytrynbaum, Ginath, Birdwell et al (1979) conclude that GAS can no longer be considered as a single model.

The evidence for reliability is equivocal and difficult to interpret, with similar concerns about validity, questioning whether it is even possible to establish and what a GAS score actually measures. Nevertheless, during the 1970s and 1980s GAS was applied in many settings and became useful as a clinically therapeutic tool.

Reviewing the literature applying GAS to pain management settings revealed its use in the clinical settings of chronic cancer pain, paediatric pain, non-malignant chronic pain and geriatric chronic pain. It is interesting to note how GAS is used both for evaluation and therapeutically in pain management settings. It could be argued that GAS is particularly useful in pain management settings as it captures the multi-dimensional nature of chronic pain, but in reviewing the relevant papers, the psychometric concerns remain. GAS is also useful in the context of patient centred approaches to healthcare since it should reflect the patient's unique experience of chronic pain.

Section D concludes with a review of recent applications of GAS and suggests that despite having lost its mass popularity, is still applied in diverse settings such as evaluating brief psychotherapy, rehabilitation of patients with amputations and behaviour interventions for intellectually impaired individuals. GAS is particularly useful in pain management and rehabilitation settings. It will be argued that GAS can be used to enhance therapeutic intervention and detect clinical change in a pain management programme based on cognitive behavioural therapy principles.

Chapter 2

Section B. Empirical Research

Pain Related Health Beliefs and Disability – the role of Pain Self-Efficacy.

Exploring disability in chronic pain patients: the mediating effects of pain beliefs on disability

Introduction - Clinical background to research

Definition of pain

When attempting to define pain, it is important to make the distinction between acute and chronic pain. In 1990 John Bonica defined acute pain as "a constellation of unpleasant sensory, perceptual, emotional and mental experiences with associated autonomic, psychological and behavioural responses, provoked by injury, potential injury or acute disease"(p.162). The *International Association for the Study of Pain* (1994) defines chronic pain as that pain which persists beyond the expected normal time of healing. In practice a period of six months is normally quoted.

Pain has also been defined as "an unpleasant sensation and emotional experience, which is associated with actual or potential tissue damage or is described in terms of such damage" (Merskey 1986). This definition is problematic since it does not differentiate acute and chronic pain nor does it convey the potentially devastating effect chronic pain might have on an individual's life.

McCaffery and Beebe (1989) avoid any reference to injury, focusing instead on the individual; they suggest that pain "is whatever the experiencing person says it is, existing whenever the experiencing person says it does".

A universally accepted definition of pain is probably unlikely; but there is a clear need for a definition that reflects the multi-faceted nature of pain. In this author's opinion, the McCaffery and Beebe (1989) definition is particularly useful in clinical practice.

A biomedical definition that focuses on damage or altered physiology may be problematic when investigations such as magnetic resonance imaging fail to establish aetiology of the pain. For example, an orthopaedic surgeon telling a patient that nothing has been found on scan may lead the patient to believe the pain is imagined. To take a further view, it is important to accept the patient's complaint of pain and focus on the sequelae of pain rather than diagnosis.

Epidemiology

Chronic pain is a hidden epidemic with some estimates at 25%-30% of the United States population suffering at any one time (Bonica 1990). The epidemic label is justified considering the following North American statistics. Osterweis, Kleinman and Mechanic (1987) note approximately 10% of all individuals in the United States have pain conditions on more than 100 days per year and 7 million Americans disabled with low back pain account for more than 8 million medical consultations annually. In fact, 80% of medical consultations are for pain-related problems (Bresler and Trubo 1979). Even twenty years ago, the cost of low back pain alone was a staggering 16 billion dollars per year (Frymoyer 1988).

Chronic pain occurs in 19% of adult Europeans causing significant harm to quality of life (Breivik, Collett, Ventafridda et al 2006). Figures for the United Kingdom are proportionately high as Tanner (1987) estimates 33 million working days annually are lost due to back pain and on any given day one in 200 of the workforce will be absent due to back pain, typically lasting six months duration. During any twelve month period, 7% of the U.K. adult population will consult their General Practitioner complaining of low back pain (Croft, Macfarlane, Papageorgiou et al 1998).

Davis (1981) found that male chronic pain patients reported feeling pain more often than female patients in a cohort with arthritis. Similarly, Keefe, Bradley and Crisson (1990) noted higher pain scores in male patients with low back pain than female patients. Other researchers have not reported gender-based pain differences (Marbach, Richline and Lipton 1983, Tsushima and Stoddard 1990).

Disability - Theory and Models

Tait, Chibnall and Krause (1990) discuss three converging areas that help explain the increased attention pain related disability has attracted in recent years. The first is the spiralling costs of disability, with some estimates placing the burden on the United States economy of approximately 90 billion dollars (Ng 1981). The second area comes from a better understanding of treatment effects. For example, some early studies using chronic pain patients have shown how functional capacity can be improved while not reducing pain levels (Aronoff, Evans and Enders 1985). Thirdly, disability has proven a difficult term to define and measure.

The World Health Organisation (WHO) (1980) defines disability as "...any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being". Main and Spanswick (2000) criticise this definition because "it assumes it is possible to identify impairment that is absolutely distinguishable from disability and a clear and unambiguous causal path between the two" (p.90), and describe this endeavour as "misguided". Johnson (1996) describes the WHO model as "...incapable of explaining many of the findings in the field, including observed shared cumulative patterns of disability and systematic discrepancies between the ratings of disability made by different health professions" (p.210). There now follows a brief outline of the major models of disability.

The Glasgow Illness Model (Waddell, Main, Morris et al 1984) resulted from an attempt to explain the variation in disability for individuals with (apparently) the same amount of physical impairment. It was found that disability status was related to distress and pain behaviour. The Emory Pain Estimate Model (Brena and Koch 1975) was one of the first to try to distinguish pathology from behaviour and led to the development of The Glasgow Illness Model.

A biopsychosocial perspective on disability has been described by Turk and Rudy (1992) and labelled the *Multi-axial Assessment of Pain* or MAP.

The MAP integrates biomedical, psychosocial and behavioural data and was developed from the *Westhaven-Yale Multidimensional Pain Inventory* (Kerns, Turk and Rudy 1985). The authors claim wide empirical support for the validity of the questionnaire (Turk and Rudy 1992).

Melzack (1999) proposes a neuromatrix theory describing the relationship between stress and pain, which predicts disability. The theory is complex but appears to offer a homeostatic explanation for the development of chronic pain and disability. The psychological sequelae of chronic pain are understood in terms of the stress of pain and other stressors. The development of chronic disability can be understood within a homeostatic framework in terms of attempting to restore equilibrium by engaging in attempts to minimise pain, if not escape from it, or to avoid pain altogether.

Main and Spanswick (2000) describe the 'disuse syndrome' – fear mediated responses and guarded movements can also be understood within the general psychobiological framework as an example of coping with chronic pain. Main and Spanswick (2000) describe disability as psychologically mediated and have proposed a seven-stage model of chronic pain disability. The first stage is the development of de-conditioning and disuse caused by under-activity and guarding. The second stage is influenced by fear and avoidance when the patient is concerned that activity will exacerbate the pain problem. Stage three sees the patient vulnerable to depression and at the fourth stage the patient is influenced by anger and frustration. Stage five considers iatrogenic effects, the possible harmful consequences of treatment. The sixth stage highlights how the family can contribute to fear avoidance, patient misattributions and depression by undermining patient confidence and progress. The final stage concerns the influence of socio-economic and occupational factors, including the role of disability payments.

Main and Spanswick (2000) do not offer empirical support for their model of disability, although provide a useful framework in which to assess disability status. They suggest the challenge for the clinician is to understand how these various features interact with the individual patient. Johnson (1996) suggests disability should be examined as a behaviour (rather than as a cause of emotional distress) and behavioural models should be integrated with the WHO model.

Chronic pain-related disability

Council, Ahern, Follick et al (1988) found 85% of low back pain patients reported they were incapable of completing a series of movements including leg lifts and lateral bends because of anticipated pain. Only 5% were unable to perform the activities because of actual lack of ability. So to understand these findings, the authors suggest the patient's avoidance of exercise was not the presence of pain, but their learned expectation of heightened pain and physical arousal, which may augment pain and reinforce the patient's beliefs about pain related disability. Schmidt (1985) suggests that patient's negative appraisals of their capability for physical performance sets up a negatively reinforcing cycle maintaining the perception of helplessness and disability.

Jensen, Turner and Romano (1994) reported how patients who believed they were disabled by pain and should avoid physical activity because pain signified damage more likely to be physically disabled than those patients who did not express such beliefs. Similarly Slater, Hall, Atkinson et al (1991) reported patients beliefs about the pain and disability were significantly correlated with actual measures of disability, but not to the physicians' report of disease severity.

Pennebaker (1982) suggest that once disease / illness cognitions are formed, they become stable and resistant to change. They argue patients will avoid experiences that could invalidate their beliefs and behave in consistent ways with these beliefs, even when those beliefs are no longer valid.

In older adults, pain is one of the most common symptoms when presenting to their primary care provider worldwide (Elliott, Smith, Penny et al 1999 Gureje, Simon and Von Korff 2001 Hasselstrom, Liu-Palgren and Rasjo-Wraak 2002).

Chronic low back pain provides a particularly challenging problem in older adults and loss of independence related to impaired physical function is of central importance (Leveille, Guralnik, Hochberg et al 1999). Weiner, Rudy, Young-Sin et al (2004) used a cross-sectional design to examine the functional impact of pain-related and general medical co-morbidity on community based older adults.

Using structural equation modelling to evaluate the influence of pain and medical variables on disability, Weiner, Rudy, Young-Sin et al (2004) reported only pain duration and pain severity were significant predictors of disability and concluded despite the prevalence of medical co-morbidities in older adults with chronic low back pain, they appear to be of limited value in understanding degree of disability. The authors also suggest that much of the medical data collected in primary care evaluation of low back pain disability in older adults is of limited value and that pain severity and duration should be of key interest.

Gatchel, Polatin, and Kinney (1995) evaluated a sample of 324 injured workers with acute low back pain and followed them over 6 months to identify those individuals who went on to develop chronic low back pain. A battery of measures identified what the authors described as "psychosocial disability factor", comprising three factors; levels of self reported pain and disability, the presence of a DSM III Axis II personality disorder and scores on Scale 3 (Hysteria) of the Minnesota Multi Phasic Inventory (Hathaway and McKinley 1967). The model generated from these findings classified 88% of the cases correctly. These findings contribute to the growing body of evidence that chronic pain disability reflects more than physical symptomatology but rather a complex psycho-socio-economic phenomenon (Gatchell, Polatin and Kinney 1995). Some researchers have suggested that only about 50% of the total chronic pain disability can be attributed to physical impairment (Waddell, Main, Morris et al 1984).

It is worth noting that a magnetic resonance imaging study reported significant spinal abnormalities in asymptomatic patients (Jensen, Turner and Romano 1994). The relationship between pathology and disability is neither predictive nor consistent. Physical findings such as radiographic results have not been found to be reliable predictors of low back pain (Mayer and Gatchel 1988). Gatchel (1996) argues most cases of low back pain are "ill defined and physically unverifiable" (p.39). So the Gatchel, Polatin and Kinney (1995) study highlighted the role of psychological characteristics in identifying those workers most at risk for developing low back pain related disability.

In a later study, Gatchel (1996) warns that the "psychosocial disability factor" model of chronic pain does not propose that psychopathology causes chronic pain. Rather, psychopathology is a risk factor and the psychopathology observed in a chronic pain patient will depend on pre-morbid characteristics of that individual.

Turner, Jensen and Romano (2000) investigated if function in patients with chronic pain is independently predicted by pain related beliefs, coping and catastrophising. Using a sample of 167 patients entering a multidisciplinary pain program, the authors reported that pain belief scores significantly and independently predicted physical disability after controlling for all other variables in the model. Catastrophising independently predicted depression only and not physical disability. From these findings, the importance of targeting specific pain related beliefs as a treatment focus for modification was highlighted.

Gatchell (1991) has proposed a three stage model of pain related disability, starting with the emotional reactions to acute pain such as fear and anxiety. These reactions are highly predictable as an individual perceives the threat of physical harm. If the pain lasts beyond a period of 4 to 6 months, then the patient will proceed to the second stage. Stage 2 is characterised by an increased focus on the development or exacerbation of psychological problems, such as learned helplessness, depression and anger. Gatchell (1991) believes pre-morbid or pre-existing personality or psychological characteristics will predict which psychological problems will be made manifest. Environmental and socioeconomic factors will also contribute to the psychological problems. So for example, an individual with a pre-morbid history of depression who loses their job because of pain related disability will suffer compromised economic income, which in turn will augment the depression. Similarly, an individual prone to elevated anger may find the physical restrictions of pain related disability frustrating, which will augment the anger state. Gatchell (1991) emphasises this model does not offer support for the "pain-prone personality". Instead, it is assumed there is general non-specificity in terms of the relationship between personality and psychological problems. The third stage of this model occurs if the behavioural / psychological problems persist and can be viewed as consolidation of abnormal illness behaviour. Accepting or adopting a "sick role" will excuse the individual from certain responsibilities and social obligations.

Solicitous behaviour from family and friends may also serve to reinforce not displaying "well behaviours". Furthermore, Gatchell (1991) believes compensation payments an important disincentive for improving function. Underpinning this model is what has been described as "physical de-conditioning syndrome" (Mayer and Gatchell 1988). This occurs as a result of physical disuse and resultant atrophy, causing significant loss in physical strength, flexibility and endurance. Support for this model has been provided by Polatin, Kinney, Gatchel et al (1993) and Blanchard, Kirsch, Applebaum et al (1989), with the latter focusing on patients with chronic headache and reported psychopathology may be a significant factor in the aetiology of chronic headache.

There is general consensus that biomedical factors contribute modestly to chronic pain-related disability (Waddell 1987) as a result, there has been increasing interest in the role of psychosocial and environmental factors. One such variable is socio-economic status (SES) and although often characterised by an individual's income, occupation and level of education, other factors such as geographic residence, job satisfaction or population density have also been of interest (Roth and Geisser 2002). A concern remains about defining SES and whether SES should be analysed as a single or multivariate measure (Roth and Geisser 2002).

Level of education can be considered a stable representative measure of SES that is less amenable to the reciprocal effects of impaired health on SES when compared against income and occupation. The robust nature of level of education has made it a favoured variable when investigating health status among chronic pain researchers.

Consistent evidence has found an inverse relationship between educational achievement and illness parameters. For example, lower level of educational achievement is associated with more impaired clinical status in patients with rheumatoid arthritis (Callahan, Bloch and Pincus 1992). An inverse relationship has been reported between education and pain severity and occupational disability in patients with fibromyalgia (Roth and Bachman 1993).

In back pain research, lower level of education achievement has been associated with higher pain prevalence (Deyo and Tsui-Wu 1987), greater disability (Cats-Baril and

Frymoyer 1992), greater risk of work disability (Tate 1992) and higher inclination to seek disability benefits (Westrin, Hirsch and Lindegard 1972). Despite the evidence for a strong relationship between low educational achievement and pain related chronicity and disability, the mechanisms of these relations remain unclear. It could be argued those individuals with low educational achievement may be in more physically demanding jobs and thus more prone to musculoskeletal problems. Pincus (1988) has suggested an alternative approach, arguing that low educational achievement serves as a behavioural risk factor identifying those individuals pre-disposed to illness and disability by means of their unhealthy lifestyle patterns, maladaptive coping strategies and ineffective use of healthcare resources. Pincus (1988) suggests that diminished capacity to problem solve, failure to accept responsibility for personal behaviour and ineffectual coping with stress pre-dispose the individual to disability and these cognitive appraisals, such as low self-efficacy, mediate the level of education and disability relationship. There may also be a gender bias. Davis (1981) as previously discussed found that male chronic pain patients in a cohort with arthritis reported feeling pain more often than females.

Disability has been described as a social construct and a "measure of one of the critical relationships between an individual and his or her society" (Loesner and Sullivan p.114 1995). Concerns have been raised over the involvement of physicians who may sanction disability in patients with low back pain (Waddell, Newton, Henderson et al 1993). There is a danger of labelling a patient with low back pain as permanently disabled and so unfit for work. The patient may believe they can never work again and are not given the help or opportunity to challenge their non-working status.

The medical evaluation of disability relies on making the distinction between impairment and disability. Impairment has been defined as "any loss or abnormality of psychological, physiological or anatomic structure or function" (Loeser and Sullivan 1995). Impairment must be considered in context of that individual's society. For example, an athlete may not be able to perform at the highest level if impaired, but still perform some type of work. Disability can be defined as any restriction or lack of ability to perform an activity expected of that individual in a particular society.

Loeser and Sullivan (1995) highlight the case of a former director of the Veterans Administration, who happened to be a triple amputee. This individual was clearly impaired but not disabled in terms of carrying out the duties of the post.

Loeser and Sullivan (1995) believe that low back pain related disability is a symptom of the "broken social contract" (p.116). The importance of working status should not be ignored; apart from the improved financial opportunities, Terkel (1974) also considers working status as a key predictor to how an individual perceives their health and sense of well being. There is no clear relationship between pathology and complaint of low back pain with some reports suggesting that 75% of patients with low back pain cannot be given a verifiable diagnosis (Deyo, Rainville and Kent 1992). This does not mean that only a quarter of low back pain patients have genuine pain, rather the technology is not available to make a diagnosis.

Loeser and Sullivan (1995) argue that physicians may cause iatrogenic low back pain related disability by recommending work abstinence. In a provocative paper, these authors suggest that suffering has been medicalised, and argue that the medical approach to treating disabling low back pain is flawed. Instead of treating the pain as the primary problem, it is the disability that should be the focus of treatment. The creation of new disease categories such as discogenic pain and repetitive strain injury have "exonerated the disabled from responsibility for their illness" and "the illness is inability to work" (Loeser and Sullivan p.117 1995). This raises the question of the role of an individual's appraisal of where responsibility lies.

Gatchel (1996) warns that measurement of such concepts such as "pain" and "disability" are fraught with operational difficulties. For example, he believes disability to be an "administrative term" and pain to be evaluated experientially or subjectively. Concepts such as pain and disability are socially constructed and not actual entities such as size and weight. The construct of disability is often used to judge whether an individual can perform particular activities with regard to employment, for example. Similarly, the construct of pain may be used to imply the presence of a psycho-physiological mechanism.

Pain is essentially a private experience bought into the public domain by the individual's expression of pain behaviours. The measurement of such private experiences raises the concern about what is actually being measured. A concern with measuring or assessing pain is the lack of a generally accepted scientific definition of pain. A psychologist might refer to a complex perceptual experience, while the physician conceptualises neural activity evoked by nociception – a sensory modality, leaving the suffering child saying "pain is a thing what hurts" (Apley 1975). The child's description is more useful because pain can only ever be operationally defined by the sufferer and problems of definition can be overcome by the utilisation of such operational definitions (Wolff 1980).

This dilemma over a formal definition of pain casts a shadow over the question of measurement. Researchers appear to adopt a balanced view, acknowledging the physical basis but modelling within a psychological framework. Gatchel (1996) emphasises the focus of measurement and intervention should be on "function" or behaviour that can be objectively and reliably evaluated, and believes the subjective components of pain and disability will improve in line with improvements in function.

Social Cognition Models

An individual's reaction to chronic pain will contribute to their disability. This reaction will be constructed around their health related beliefs and it is appropriate to describe some of the major approaches to predicting health behaviour.

The measurement of different cognitions should be placed into theoretical context. If one assumes that cognitions are central determinants of health or illness-related behaviour, then a number of models have been developed to help explain the relationship, and can be collectively described as social cognition models. Central is the 'expectancy-value' model developed from social learning theory (Rotter 1966). This model suggests the likelihood of a particular behaviour will be a function of an individual's expectation that the behaviour will produce a positive outcome and on the value of that outcome.

This expectancy-value model underpins two major approaches in understanding health-related behaviour; the Health Belief Model (Becker 1974) and the Theory of Reasoned Action (Ajzen and Fichbein 1980). Both approaches can be viewed as cost-benefit analysis, where the individual weighs up the relative costs and benefits of certain health behaviours and the likelihood of successful completion.

The Health-Belief Model (HBM) was developed in an attempt to explain the various factors influencing health behaviours. Of particular interest is the focus on preventative behaviours. A central tenant of the model is that the individual's decision to engage in a particular preventative health behaviour will be prompted by a specific cue, such as a mass media health message. This model is underpinned by the following perceptions; perceived vulnerability or susceptibility to the health threat concerned; perceived seriousness of the health threat; perceived benefit associated with taking preventative action and perceived barriers associated with taking that preventative action.

The HBM has been expanded by Rogers (1975, 1983) who emphasises the role of core beliefs which predict behavioural intentions which in turn mediate and predict behaviour. The Protection Motivation Theory (PMT) (Rogers 1975) expands the HBM by including "response effectiveness" and "self efficacy". The PMT describes severity, susceptibility and fear as relating to threat appraisal, and response effectiveness and self efficacy as relating to coping appraisal. In recent years, the HBM has developed to take account of other variables such as self-efficacy beliefs and demographic factors (Weinman, Petrie, Moss-Morris et al 1996). The HBM has been most widely applied in studies investigating attendance for preventative procedures or screening, and in adhering to medical treatment (Weinman, Petrie, Moss-Morriss, et al 1996).

The Theory of Reasoned Action (TRA) (Ajzen 1985) was developed to describe the interactions between beliefs, attitudes and behaviours. The central tenant proposes that voluntary actions are a function and predicted by behavioural intentions. The TRA postulates that two factors determine such intentions. The first is concerned with the attitude regarding the behaviour and based on two behavioural beliefs, about outcome of the behaviour (*If I exercise, I will improve my back condition and be* *better able to cope with my pain*) and the evaluations of these outcomes (*It is important to me to cope better with my pain*).

The second determinant of an individual's intentions is their subjective norm concerning the behaviour. The individual makes a judgement about the social acceptability and appropriateness of the behaviour. So this attitude is based on two normative beliefs about others' opinions about the behaviour (*My wife wants me to get help for my back pain*) and the individual's motivation to meet this expectation (*I want to please my wife and do what she wants*). The TRA proposes that the subjective norm and attitude regarding the particular behaviour combine to form an intention leading to performing that behaviour. Ajzen (1985) has developed this theory by incorporating other variables such as perceived control, into the Theory of Planned Behaviour (TPB). The TPB describes behavioural intentions as the outcome of several beliefs. Ajzen and Madden (1986) suggest that intentions should be considered as plans of action in pursuit of behavioural goals and are predicted by attitudes toward a behaviour (including positive and negative evaluations), subjective norm (including perception of social norms and pressures to perform a behaviour and perceived behavioural control (or the belief the individual can complete a behaviour considering both internal and external control factors).

Yet a further development in Social Cognition Models was the Health Action Process Approach (HAPA) described by Schwarzer (1992) who had criticised the TPB for its omission of a temporal element. The HAPA also emphasises the importance of self efficacy as a determinant in behaviour intentions and mediates the outcome expectancies and volitional process relationship. Indeed Schwarzer (1992) argues that self efficacy is the best predictor of behaviour intentions and behaviour change in a variety of health related behaviours including effective use of contraception, breast self examination and intention to stop smoking.

Further attempts to predict and explain health related behaviour have led to developing cognitive explanations. One example is the work on "common sense models" which focuses on the individual's own representations or perceptions.

Developed from cognitive psychology and particularly work on problem solving, it draws on the assumption that an individual needs to construct an 'internal representation' in order to solve a particular problem.

The Illness Representation Model has been developed by Leventhal and colleagues into the *Self Regulatory Model of Illness Behaviour* (Leventhal and Cameron 1987). Leventhal proposes that three stages regulate adaptive behaviours during a health episode such as treatment compliance or an illness threat, such as a symptom. The first stage is cognitive representation when an individual develops a model or representation of the cause and consequence of the problem. The second stage involves plans and strategies to meet the problem, and the third stage sees the individual making appraisals or evaluations of these strategies. These evaluations may lead to changes in the representation and possibly the strategies to cope with the problem. Lawson, Bundy, Lyne et al (2004) recently applied this model to study diabetics and found non-attenders at a diabetic clinic had more negative representations than attenders. The non-attenders also reported less conviction in the effectiveness of treatment, less perceived control, and perceived more serious consequences. It could be argued these findings suggest illness representations predict diabetic health care behaviour. The Self Regulatory model of illness has also been successfully used to explain treatment adherence with medication (Horne and Weinman 1999, 2002).

The TRA has been used to understand variation in preventative behaviours such as exercising (Godin 1994) and risk behaviours such as unprotected sex (Fishbein and Ajzen 2005). The application of the 'illness representation' approaches has been useful in not only attempting to explain the way patients interpret their illness but also provide a framework to explain illness behaviour. For example, Nerenz, Leventhal and Love (1982) reported a clear relation between levels of distress in cancer patients and their representations of unpleasant side effects from chemotherapy.

Recent developments from the TRA have attempted to include such additional factors as emotions and self identity. Abraham and Sheeran (2004) for example found that anticipated regret contributed to the variance in a study using the TPB to predict intention to exercise.

The TRA and TPB have also been successfully applied to predicting breast and testicle self examinations (Fishbein and Ajzen 2005). Connor and Sparks (2005) report how TRA variables predict between 43% and 46% of the variance and TPB variables predicting 50% of the variance in intentions to behave.

Health Locus of Control (HLoC) has been developed from Attribution Theory (Kelley 1967, 1971) having its roots in the work of Heider (1944, 1958) who argued individuals have a need to understand causality of events in their social world. Since its original description, Attribution Theory has evolved and developed particularly distinguishing between self attributions and other attributions, and have been described using the following dimensions (Wallston & Wallston 1982);

- internal versus external (e.g. my failure to cope with my pain is not my responsibility versus my doctor's prescribing practice)

- stable versus unstable (e.g. the cause of my failure to cope with my pain will always be around versus was specific to that one situation)

- global versus specific (e.g. the cause of my failure to cope with my pain influences all other areas of my life versus only certain areas)

- controllable versus uncontrollable (e.g. the cause of my failure to cope with my pain is controllable versus is uncontrollable by me)

Brickman, Rabinowitz and Karuza (1982) distinguished between attributions made about causes of a problem and about the possible solution. They provide an example of an alcoholic believing on the one hand he became an alcoholic due to lack of willpower and on the other, the medical profession responsible for making him well again.

The internal versus external dimension of Attribution Theory has been specifically applied to health using the concept of *health locus of control.* Individuals are considered to regard events as controllable by them (internal locus of control) or uncontrollable by them (external locus of control). Wallston and Wallston (1982) developed a measure of the health locus of control which evaluates whether an individual considers their health as controlled by them ("I am directly responsible for my health"), in the hands of chance factors ("Whether I am well or not is a matter of luck") or under the control of powerful others ("I can only do what my doctor tell me to do"). Within chronic pain management, interest in patients' locus of control led to the development of the Pain Locus of Control Questionnaire (Main &Waddell 1991). The idea that a patient needs to take responsibility for their chronic pain underpins the philosophy of pain management programmes. The patient is encouraged to be proactive in health maintaining improvement behaviours.

Criticisms of health locus of control have focussed on asking whether it represents a state or trait and if it is possible to make simultaneous internal and external attributions. This might be seen when an individual seeks out the advice of a health professional for their back pain: viewing the orthopaedic surgeon as the answer might be considered external but determining health status by seeking appropriate help could be considered an internal attribution. Some illnesses might also require both such as medical treatment for arthritis, cancer and diabetes as well as the patients' motivation to minimise the effect of the illness on their lives.

The Stages of Change (SoC) model was developed from the Transtheoretical model of behaviour change by Prochaska and DiClemente (1982). The SoC model is based on five stages;

1. Precontemplation - the individual is not intending to make changes
2. Contemplation – the individual is considering a change
3. Preparation – the individual is making small changes
4. Action – the individual is actively engaging in a new behaviour
5. Maintenance – the individual sustains the change over time.

The stages are not consecutive or linear and the theory highlights the dynamic nature of behaviour change. For example, an individual might be at the preparation stage and move back to the contemplation stage several times before progressing to the action stage. The SoC model also examines the cost / benefit analyses of a particular behaviour change. The authors argue that individuals at different stages will distinctively focus on either the costs of a behaviour (*doing an exercise program will be time consuming*) or the benefits of the behaviour (*doing an exercise program will help my back pain*). The authors argue that individuals in the precontemplation stage tend to focus on the negative costs of the behaviour.

Critics of the SoC model (Weinstein et al 1998, Sutton 2000, 2002) have argued that it is difficult to identify whether behaviour change occurs along a continuum or in stages. Further concerns include arguing that behaviour change may happen so quickly thus making the stages unimportant, and also the concept of a "stage" is too simplistic and may ignore the complex nature of behaviour change.

The SoC model has been used to categorise patients into separate therapy interventions in terms of current knowledge, attitudes and beliefs. In musculoskeletal pain settings for example, it could be argued that precontemplaters need preparation and guidance on the biopsychosocial model of chronic pain. There may be need to challenge particular beliefs that may inhibit change. Tailoring approaches may increase the likelihood of change such as taking on self management principles. This approach has been described by Whysall, Haslam and Haslam (2007) who developed tools to assess individual stage of change towards reducing the risks of musculoskeletal disorders in occupational settings. They found employees' stage of change differed based on work sector, attitudes and experience of pain.

The SoC model has been applied to predicting those patients most likely to gain benefit from pain management interventions and by identifying the stage of change, might direct a patient's care (Miller and Rollnick 1991, Jensen 1996). The SoC model has also been used to investigate why chronic pain patients fail to improve after attending a pain management programme. It has been suggested that lack of readiness to change explains this treatment failure (Turk 1990).

Kerns, Rosenberg, Jamison et al (1997) developed a measure of readiness to adopt chronic pain self management strategies. The *Pain Stages of Change Questionnaire* (PSoCQ) was originally developed to reflect the five stages originally described by Prochaska and DiClemente (1982), but the *Contemplation* and *Preparation* scales were closely related and so the items were combined and labelled *Contemplation.* Kerns and Rosenberg (2000) reported the Precontemplation and Contemplation scales distinguished patients who participated in a pain management programme from those who either declined to participate or withdrew from the intervention.

Jensen, Nielson, Romano et al (2000) used the PSoCQ to classify chronic pain patients into specific stages of readiness to self manage their pain. The authors reported the PSoCQ failed to distinguish patients based on pain beliefs and coping, and concluded the measure may not be useful clinically as a tool for identifying pain patients' readiness to change.

Linking Intention and Behaviour

Gollwitzer (1993) first described the notion of implementation intentions. According to Gollwitzer, engaging in an intention involves developing specific plans about an individual's behaviour given a specific set of environmental factors. Accordingly, implementation intentions detail the content and occasion of a particular behaviour. For example, the intention "I intend to start exercising" is more likely to occur if the individual makes the implementation intention, "I intend to start exercising each day for twenty minutes after breakfast". Support for this model that encourages individuals to make implementation intentions has shown how the correlation between intentions and behaviour can be improved in vitamin taking (Sheeran & Orbell 1998) and performing breast self examination (Orbell, Hodgkins & Sheeran 1997). It could be argued that utilising implementation intentions in cognitive behavioural models would improve the prediction of actual behaviour.

Criticisms of Social Cognition Models

The application of social cognition models to predict health related behaviour has led to criticisms emphasising theoretical and methodological weaknesses. For example, Ogden (2003) described three main weaknesses: the theories cannot be disproved, the models lack ability in predicting variance, the models rely on self report measures and may be unreliable. Earlier concerns had been raised by Stainton-Rogers (1991) who described social cognition models as being too mechanistic and conceptualise thinking as a passive activity thus in danger of ignoring environmental influences. Intention to exercise for example, will be a result of interactions with the social world. Similarly, studies of causal explanations often neglect supernatural causes and there might be a danger of taking a Euro-centric view of causal illness attributions. Marks, Murray, Evans et al (2005) suggest supernatural causes of illness should not be ignored. For example Furnham and Baguma (1999) compared British and Ugandan participants in explanations for health and illness and described higher incidence of reporting supernatural causes in the Ugandan sample. Marks, Murray, Evans et al (2005) further suggest that individuals may feel too embarrassed to admit to having supernatural beliefs and describe an American study which asked participants to generate causes of illness. Only 4.7% of the sample admitted making supernatural attributions but this figure increased to 66.4% when supernatural causes were provided.

Marks, Murray, Evans et al (2005) warn that TRA and TPB do not predict behaviour but rather intention to behave and inconsistent findings have been reported between intention to behave and actual behaviour. Sheeran (2002) reported on a meta analyses of prospective tests of the intention-behaviour relationship and found across 422 studies using over 80,000 participants that intentions predicted only 28% of the variance in behaviour. Similarly, Armitage and Connor (2002) reviewed 185 studies and found that TPB accounted for between 27% and 39% of the variance in behaviour and intention.

Marks, Murray, Evans et al (2005) raise further concerns with social cognition models. First, all of these models view the individual as behaving based on rational decision making but fail to take into account other variables such as health habits. Secondly, social cognition models fail to include the impulse and emotion that may directly influence health behaviours. Thirdly, social cognition models presume to predict health behaviour across different settings but fail to include different influences dependent on the situation. Finally, these models also fail to account for both the influence of others on health behaviour, and practical issues such as availability of sports facilities.

Pain Related Beliefs

Recognising the importance of pain related beliefs can be traced back over thirty years. Sternbach (1974) reported a taxonomy of pain "games" to describe the coping styles of patients who adopt a lifestyle and set of beliefs encouraging disability. Turk, Meichenbaum and Genest (1983) wrote their influential book "*Pain and Behavioural Medicine: A Cognitive Behavioural Perspective*", in which they describe therapeutic strategies for chronic pain patients and emphasise the need to address maladaptive beliefs. The cognitive-behavioural perspective provides a useful theoretical framework for understanding the reciprocal interaction between cognitive, affective and behavioural contributions to pain beliefs. Consequently, this integrated approach allows pain coping to be viewed as a dynamic process mediated by beliefs, attitudes and thinking.

Beliefs have been defined as personally formed culturally shared cognitive configurations (Wrubel, Benner and Lazarus 1981). Our perceptions of ourselves and our environment are shaped by these pre-existing notions about the nature of reality (Lazarus and Folkman 1984). Beliefs may be considered part of a stable personality disposition if generalised or wide ranging (Lazarus and Folkman 1984).

DeGood and Shutty (1992) suggest two belief related constructs are worthy of note, "expectancy" and "cognitive coping". They describe expectancy as often being synomonous with beliefs, but point out in the research literature it normally refers to particular beliefs about the future. The emphasis is on relationships between one set of events and future consequences.

DeGood and Shutty (1992) argue self-efficacy expectations to be the most relevant in pain management; the belief that a particular behaviour can lead to a particular outcome regardless of whether the patient has the ability to complete the behaviour.

In contrast, "cognitive coping" reflects a patient's ability to execute a cognitive response to threat. Lazarus and Folkman (1984) differentiate between adaptive or maladaptive coping response, which is determined by the demands of the stressor and resources available. A concrete example based on this author's clinical experience may help to operationalise the above terms. A patient with musculoskeletal low back pain can be told that relaxation has been found to be useful for managing such pain. The patient will make a judgement regarding the veracity of this suggestion (the outcome expectancy belief). The patient may believe the statement to be true but doubts their ability to relax (self efficacy belief). So, if this relaxation strategy is to be successfully incorporated into the repertoire of coping skills, the patient needs to: 1) believe that relaxation might be useful, 2) believe they are capable of performing the action, 3) actually perform the action and, 4) experience benefit from using the strategy.

DeGood and Shutty (1992) have described the dimensions of beliefs relevant to chronic pain management, and include: 1) basic philosophical assumptions about the self and the world in general, 2) beliefs sufficiently generalised and stable to take on the quality of a personality trait and, 3) beliefs directly related to the chronic pain experience. The first category refers to loosely organised but deeply held views about such issues as justice, fairness and suffering. These beliefs represent value judgements about the nature of reality, a judgement of how things should be. For example, a patient's suffering will be augmented if they believe that life should be pain free. Similarly, this author's clinical experience has revealed some patients' believing their pain to be caused by divine intervention and are being punished for a weak faith.

Beliefs in the second category tend to be better organised and based in everyday life. These beliefs are generalised across different situations and often conceptualised as personality traits.

Lazarus (1991) suggests that "people carry around with them private and recurrent personal meanings that lead them to react inappropriately to an encounter with a sense of betrayal, victimisation, refection, abandonment, inadequacy, or whatever" (p.363). While other individuals, may have personality predispositions which augment coping when confronted by the threat of chronic pain. Different researchers have described such constructs as "hardiness" (Kobasa 1979), "locus of control" (Rotter 1966), "attributional style" (Abraham, Seligman and Teasdale 1978) and "self efficacy" (Bandura 1977). These constructs have been described across different stressful situations, including pain and illness.

The third category of pain beliefs as described by DeGood and Shutty (1992) refer to specific beliefs about pain control or relief, and closely associated with the patient's responses to treatment options. For example, and from the author's clinical experience, a patient focussed and stuck in the medical model of medical investigations and diagnosis may be less receptive to self-management strategies such as pacing, stretch and relaxation.

DeGood and Shutty (1992) provide anecdotal evidence from their clinical practice describing patients with consistently maladaptive beliefs. For example, despite non-conclusive intensive medical investigations and subsequent unsuccessful treatment, many patients still requested more of the same. Similarly, many patients find it inconceivable that some pain complaints can be improved through self-management, as this might imply their condition is non-physical and therefore less respectable. Furthermore, some patients may exaggerate their symptoms or pursue dangerous invasive procedures in order to validate their pain complaints (DeGood 1983). One can speculate that such beliefs lie in prior learning that pain is a signal of danger or warning that something is wrong and needing medical attention.

DeGood and Shutty (1992) suggest these maladaptive beliefs should not be viewed as artefacts of chronic pain. Rather, such cognitions can be central to the chronic pain problem, and become the "internal reality controlling the patient's behaviour" (p.215).

Self Efficacy

Self efficacy (SE) has been defined as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (Bandura 1994, p.71). Bandura considers those with high SE as approaching difficult tasks as challenges to be overcome, rather than threats to be avoided.

These individuals are robust in their commitment to goal achievement despite failure. Sense of SE is quickly recovered after setback and attribute failure to poor effort or lack of knowledge which are remediable.

Threatening situations are approached with confidence where control can be exercised. In contrast, individuals with low SE doubt their capabilities and are threatened by difficult tasks. Low aspirations are accompanied by weak commitment and when confronted by challenges, focus on their personal deficiencies. Insufficient performance is viewed as deficient aptitude explaining why faith is lost in their own capabilities.

Bandura (1994) has provided an overview of the four main sources of how SE develops. The first is what Bandura describes as "mastery experiences" and occurs through perseverance when in the face of a difficult task, an individual achieves success. The success reinforces the high SE and even set backs can be useful, teaching that success is achieved through sustained effort.

Bandura's second source of creating and strengthening SE is through observing the behaviour of others, or modelling. Seeing others similar to the observer raises expectations in the observer that he or she too can be successful. Similarly, observing others fail despite concerted effort may lower the observer's judgements of their own efficacy. The impact of modelling is contingent on the perceived similarity of the observer to the model. Modelling not only provides a social standard to compare one's capabilities, but a means of learning from competent models.

The third source is what Bandura describes as "social persuasion". People who are told they have the capabilities to succeed at a particular challenge, are more likely to mobilise efforts to meet that task. Individuals told they lack capabilities tend to avoid challenging activities and are likely to give up in the face of difficulties.

The final source of developing SE comes from the interpretation of an individual's somatic and emotional states. In physical activities, people may judge fatigue and pain as signs of physical debility and believe they are unable to complete the task. Equally, low mood may be interpreted as a sign of vulnerability and weakness. Efficacy can be improved by changing negative reactions and erroneous interpretations of physical health.

Bandura (1994) has highlighted the following four major psychological processes mediated by SE; cognitive, motivational, affective and selection processes. According to Bandura (1977) self-efficacy reflects the strength of belief that one can successfully execute the behaviour required to produce a suitable outcome. This is not the same as "outcome expectancy" which is an individual's estimate that a given behaviour will lead to a certain outcome. An individual may have high outcome expectancy for a particular action but if they do not believe that completion is likely they may decide to not even attempt the action. Having knowledge and high outcome expectancy on the value of exercise, may not necessarily lead an individual to attend an exercise class.

Self-efficacy is considered to be situation-specific or task specific (Bandura 1990) and is developed from performance based accomplishments, vicarious experiences of others' success, verbal persuasion, and emotional arousal. Bandura has argued that "efficacy expectations determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences" (Bandura 1977, p.194). He does not believe self-efficacy beliefs are fixed but amenable to change in the light of experience. In the clinical context, Bandura believes that if a patient can improve their sense of SE, they are more likely to engage in activities previously avoided.

Self Efficacy and Pain-Related Disability

Flor and Turk (1988) reported how significant variance in pain and disability were predicted by cognitive factors which were labelled catastrophising, helplessness, adaptive coping and resourcefulness. In both low back pain and rheumatoid arthritis groups, catastrophising and adaptive coping were more powerful explanatory variables than disease related variables or impairment. Consistent findings were reported by Keefe, Brown, Wallston et al (1989) who found patients with rheumatoid arthritis reporting high pain intensity and disability indicated elevated catastrophising six months earlier.

It is interesting to note how some researchers have explained the role of SE in pain perception within a biochemical framework. Bandura, O'Leary, Taylor et al (1987) examined the role of central opioid activity in cognitive control of pain. They asked participants to practice various coping strategies for reducing pain, such as diversion and reframing of pain sensations. Key findings included SE improved with cognitive training, SE predicted pain tolerance and naloxone (an opioid antagonist) blocked the effects of cognitive control. This third finding specifically implicates the direct effects of thoughts on endogenous opioids. Bandura, O'Leary, Taylor et al (1987) concluded that the endogenous opioid system partially mediates how SE influences pain perception.

Turk (1996) describes how rheumatoid arthritis is an autoimmune disease possibly caused by compromised suppressor T cell function. O'Leary, Shoor and Lorig (1988) worked with rheumatoid arthritis patients, providing cognitive behavioural stress management. Enhancement of SE beliefs (about the ability to control pain and disability) was correlated with therapeutic efficacy. Individuals with higher SE and greater SE enhancement displayed increased concentration of suppressor T cells, suggesting a direct effect of SE on physiology. It was also reported that increased SE for function was significantly related with decreased disability and joint impairment.

Wallston (1992) suggests that self-efficacy beliefs are more important than beliefs about locus of control in predicting outcomes of treatment.

Dolce (1987) reported that low SE beliefs held by chronic pain patients might be disability beliefs. Patients who make physical gains post treatment but who do not change their SE beliefs may attribute their progress to external sources such as input from a physiotherapist. Failure to attribute to internal sources may help to explain relapse. Dolce (1987) proposed that chronic pain patients with low SE beliefs should be identified and early focus should attempt to improve SE.

Bandura (1994) has suggested three ways how coping efficacy can bring relief from pain. Those who are confident they can relieve their pain are more likely to seek out the necessary healthcare and skills to achieve this goal. Those with low efficacy will quickly give up in the face of disappointment. Secondly, having high SE will reduce distressing expectations that create aversive reactions and physical tensions which in turn can augment discomfort. Lastly, those individuals with high SE and who believe can control their pain are likely to view unpleasant symptoms more benignly than those who are threatened by them.

Cioffi (1991) has provided a psychological framework to explain the mechanisms accounting for the reported association between SE and behavioural outcome. It is suggested that at least four psychological processes may be responsible: 1) as perceived SE decreases anxiety and physiological arousal, the person may approach a task with less distressing information; 2) the person with high SE is able to distract attention from potentially threatening physical signs; 3) although the highly efficacious person is distressed by physical signs, they persist at a given task (stoicism); and 4) physical signs are neither ignored or threatening but are given broad meanings by the individual with high SE.

Self-efficacy is an area of psychological functioning gaining increased attention in recent years amongst pain researchers (Nicholas 2005). Inconsistent findings have been reported on the effect of gender on self-efficacy. Tait, DeGood and Carron (1982) and Lackner, Carosella and Feuerstein (1996) reported male chronic pain patients had higher self-efficacy scores than female patients. In contrast, Strong, Ashton and Chant (1992) and Beckham, Rice and Talton (1994) reported no gender based differences on self-efficacy. Goldberg (1987) suggested that chronicity seems to have a negative effect on self-efficacy, who reported a positive relationship between chronicity and perceived disability. Matheson, Matheson and Grant (1993) reported that chronicity was inversely related to perceived functional ability. Mangione, Marcantonio and Goldman (1993) found patients with chronic pain aged over seventy years of age had significantly lower self-efficacy than younger patients, although Strong, Ashton and Chant (1992) and Kotler-Cope (1993) found no relationship between age and self-efficacy.

Thirty percent of people with neck, shoulder or back pain may be expected to report limitations in daily life (Picavet and Schouten 2003). Linton (2000) has argued psychological factors are related to both the onset and development of spinal pain and disability. A growing body of evidence has found SE to be an important factor when describing chronic pain related disability. Self efficacy was found to influence adjustment to chronic pain (Jensen, Turner and Romano 1991) and pain related disability (Estlander, Vanharanta, Moneta et al 1994), to mediate the relationship between pain intensity, disability and depression (Arnstein 2000, Arnstein, Caudill, Mandle et al 1999) and pain behaviour and avoidance (Asghari and Nicholas 2001) in chronic pain patients. SE has been reported as a more powerful predictor of disability than fear avoidance (Ayre and Tyson 2001).

Most studies investigating pain self efficacy (PSE) and disability have been conducted in secondary or tertiary health care settings, but Turk and Rudy (1990) highlight concerns about referral patterns causing selection bias, and findings may not necessarily generalise to patients managed in primary care settings. Denison, Asenlof and Lindberg (2004) used two primary care samples of patients with musculoskeletal pain and found SE predicted a considerable larger proportion of the variance in disability scores than fear avoidance. The authors concluded that pain related beliefs, such as SE, are more important predictors of disability than pain intensity and pain duration in chronic pain patients.

The role played by SE beliefs have been used to explain disability in chronic pain patients. Buckelew, Parker, Keefe et al (1994) for example, reported after controlling for measures of psychological distress found that SE beliefs significantly predicted pain and disability.

Lackner, Carosella and Feuerstein (1996) found physical functioning in chronic low back pain patients to be predicted by SE beliefs about physical capabilities. Pain SE beliefs have also been reported by Arnstein, Caudill, Mandle et al (1999) to mediate the relationship between disability and pain intensity and concluded that "the lack of belief in one's own ability to manage pain, cope and function despite persistent pain, is a significant predictor of the extent to which individuals with chronic pain become disabled and or depressed" (p.483).

Disability in chronic pain patients has also been linked to what Fordyce (1976) has described as "pain behaviours", such as grimacing, limping and consuming analgesic medication. These pain behaviours are overt expressions or communications bringing private suffering into the public domain. Fordyce (1976) has also described behaviours inconsistent with pain behaviours and described these as "well behaviours". Typically well behaviours include activities of daily living such as household chores and exercise. Persisting pain behaviours have been associated with high levels of disability (Asghari and Nicholas 2001). So for example, a chronic pain patient displaying frequent *downtime*, (being supine as an active coping strategy) are less likely to perform activities of daily living. Accordingly, some pain management programmes encourage the chronic pain patient to reduce the frequency of pain behaviours in order to reduce disability and improve functional activity (Philips 1987).

Studies have shown how pain behaviours and SE are related. Buckelew, Parker, Keefe et al (1994) found when SE beliefs were high in fibromyalgia patients fewer pain behaviours were exhibited. Similar results were reported by Buescher, Johnson, Parker et al (1991) who found a significant degree of variance in pain behaviours predicted by SE beliefs in patients with rheumatoid arthritis. These studies demonstrated that those patients with higher SE displayed less pain behaviour and reported lower disability relative to patients with low SE scores.

Early work by Dolce, Crocker, Moletteire et al (1986), showed how SE beliefs in chronic pain patients can be improved through a behavioural programme encouraging re-engagement in physical activities.

The inverse relationship between pain ratings and self-efficacy has been reported in patients with arthritis (O'Leary, Shoor and Lorig 1988), musculoskeletal disorders (Nicholas, Wilson and Goyen 1992), (Papciak and Feuerstein 1991), reflex sympathetic dystrophy and fibromylagia (Buckelew, Parker, Keefe et al 1995) and headaches (Basler and Rehfisch 1990). Chong, Cogan and Randolph et al (2001) reported a significant inverse relationship between self-efficacy and pain ratings.

Turk, Meichenbaum and Genest (1983) developed a therapeutic model aimed at improving self-efficacy of chronic pain patients by using self-efficacy to prevent pain, reduce pain, cope with pain and to encourage change. Chong, Cogan and Randolph et al (2001) suggest enhanced self-efficacy should be an important focus of psychological interventions used to treat chronic pain patients.

Brown and Nicassio (1987) reported that chronic pain patients using an active coping style (e.g. doing leisure activities) experienced higher self-efficacy and lower levels of pain, depression and functional impairment when compared to patients using a negative or passive coping style (eg, thinking there is nothing they can do to improve). The suggestion is that psychotherapeutic approaches will enhance active coping behaviours and may produce higher self-efficacy scores (Brown and Nicassio 1987).

Summary

This chapter has discussed the problems with defining pain and in this author's opinion, a universally accepted definition will not be achieved. Different disciplines and professional bodies, and pain patients themselves, will probably continue to use self-serving descriptions of pain.

The priority should be helping chronic pain patients regain control over their lives by accepting their complaint of pain and focussing on developing strategies to reduce the sequelae of chronic pain. The chapter also discussed chronic pain related disability highlighting that biomedical explanations make a modest contribution to our understanding. Psychosocial factors are increasingly being reported as being significant predictors of chronic pain-related disability and the role of self efficacy was particularly highlighted.

Chapter 3. Measurement Issues

This chapter will review measurement issues starting with pain related disability, followed by a description of the relevance of health and pain related beliefs. This will lead onto a review of the instruments used to measure pain related beliefs with a particular focus on measuring pain self efficacy. The chapter will close by linking disability with chronic pain beliefs.

Measurement of Pain Related Disability

Efforts to evaluate pain-related disability have typically included either behavioural measures or patient's self-reports. Behavioural approaches have examined specific features of disability, such as frequency of pain behaviours, or conversely, well behaviours such as duration of walking. Keefe and Block (1982) developed a system of scoring pain behaviour, showing good reliability across several settings (Tait, Chibnall and Krause 1990). Mayer, Gatchel, Kishino et al (1986) have described a behavioural protocol in a rehabilitative setting, which has proved an accurate predictor for returning to work. These measures have been criticised for their failure to adequately reflect the complexity and variety of activities of chronic pain patients (Jerome and Gross 1991). Tait, Chibnall and Krause (1990) warn behavioural observation techniques are limited being labour intensive and their inability to encompass a global assessment of disability. Fordyce, Lansky and Calsyn et al (1984) recommend that disability assessment, regardless of its purpose, should assess both voluntary (e.g., work) and obligatory activities, such as self-care.

The Sickness Impact Profile (SIP) was developed by Bergner, Bobbitt, Carter et al (1981) and is a widely used measure of disability (Tait, Chibnall and Krause 1990). The SIP is composed of 136 items that address the following areas; ambulation, mobility, body care and movement, social interaction, communication, alertness, emotional behaviour, sleep and rest, eating, work, house management and recreation and leisure activities. Follick, Smith and Ahern (1985) reported the SIP has high reliability and validity, although their findings were only drawn from a chronic low back pain sample.

The *West Haven-Yale Multidimensional Pain Inventory* (WHYMPI) (Kerns, Turk and Rudy 1985) has also shown to be a reliable measure assessing interference with activity and ability to engage in various activities in different settings. The WHYMPI also assesses social support, pain severity, self-control, negative mood and response of significant others. The authors claim wide empirical support for the validity of the questionnaire (Turk and Rudy 1992).

Tait, Chibnall and Krause (1990) acknowledge important information can be collected via self report measures but criticise the external validity of self report measures and also express concern about being over-long. The latter concern has in part led to the development of the *Pain Disability Index*.

Pollard (1984) has developed a brief self-report measure of disability, the *Pain Disability Index* (PDI) and determines the degree to which chronic pain interferes with various daily activities. The PDI asks the respondent to rate the degree to which pain interferes with functioning in seven broad areas: family / home responsibilities, recreation, social activity, occupation, sexual activity, self care and life support activity.

Pollard (1984) reported the PDI to be effective in discriminating patients immediately post surgery (high disability) from patients several months after surgery (low disability. The PDI has also shown to discriminate between outpatients (low disability) and in-patients (high disability) with chronic pain (Tait, Chibnall and Krause 1990). The PDI was found to be internally consistent (alpha reliability = 0.87) and to exhibit a 2 factor structure distinguishing voluntary and obligatory activities, consistent with the model described earlier by Fordyce, Lansky and Calsyn et al (1984).

Tait, Pollard, Margolis et al (1987) reported construct validity and modest test-retest reliability for the PDI. Concurrent validity was in evidence when disability was reported to be associated with levels of pain behaviour exhibited by chronic pain patients.

Gender and age based differences were also described; women reported less disability than men and older patients (older than 42) reported less disability than younger patients.

Waddell (1987) has developed a method for assessing chronic low back pain related disability around nine axes; bending and lifting, sitting, standing, walking, travelling, social life, sleep, sex and footwear. The last activity refers to the help required with footwear. Adams (1997) suggests this is a "simple, rapid and reliable disability score that is sufficient for clinical purposes" (p.123).

These measures show the variety of ways disability can be construed but a more fundamental question remains about patients' beliefs about their disability and it then becomes necessary to explore relevant measures of the belief construct.

Measuring Pain Related Beliefs

Since the mid 1980s, a number of pain researchers have argued that assessing a patient's beliefs about and attitudes towards their pain should be a routine exercise (Schwartz, DeGood and Shutty 1985 Jenson, Karoly and Braver 1986, Riley, Ahern and Follick 1988 Shutty, DeGood and Tuttle 1990). It is argued that multi-dimensional assessment of attitudes should occur prior to commencement of treatment programmes (Strong, Ashton and Cramond et al 1990 Slater, Hall, Atkinson et al 1991). Collecting such information is valuable when planning treatment as a patient's attitudes and beliefs about their pain has been shown to influence ability to cope, compliance with treatment and treatment outcome (Schwartz, DeGood and Shutty 1985 Jensen, Karoly and Huger 1987 Riley, Ahern and Follick 1988 Williams and Thorn 1989 DeGood and Shutty 1992). Fishbein and Ajzen (1975) suggested that attitudes are underlying variables which influence behaviour. Attitudes are conceptualised as the degree of feeling or affect held towards an object. Williams and Thorn (1989) have described pain beliefs as the patients own conceptualisations of what pain is and its meaning for them. A belief is concerned with the information known about an object rather than feelings towards it (Fishbein and Ajzen 1975).

Turner, Jensen and Romano (2000) describe beliefs as assumptions about reality which serve as a 'perceptual lens' or a set through which events are interpreted. Thus an individual's understanding of their environment is shaped (Lazarus and Folkman 1984). Lazarus (1993) has described how beliefs about a stressor such as pain, and in particular, appraisals of threat, influence an individual's coping responses.

Turner, Jensen and Romano (2000) describe catastrophising as expecting or worrying about major negative consequences from a situation, even one of minor importance and have highlighted its role in developing chronic pain related disability. The Coping Strategies Questionnaire (CSQ) (Rosenstiel and Keefe 1983) has been used to assess catastrophising and has been found to predict pain related disability six months later. An example of the six items on the catastrophising sub-scale of the CSQ is "*It is awful and I feel that it overwhelms me*". Respondents are required to rate the extent to which they have such thoughts when in pain. Keefe, Lefebvre, Maizner et al (1997) have argued that some CP patients may accentuate their distress in order to motivate themselves to take action or gain solicitous behaviour from others, and that catastrophising is a coping strategy.

However Jensen, Turner and Romano (1991) and Geisser, Robinson and Riley (1999) have suggested catastrophising thoughts are probably not a function of coping, but rather likely to be automatic thoughts (Beck 1976) or appraisals (Turner, Jensen and Romano 2000). McCracken and Gross (1993) reported on an association between scores on a measure of anxiety and scores on the CSQ catastrophising sub-scale was much stronger than associations between anxiety and other coping variables. These authors concluded that catastrophising is better conceptualised not as a coping strategy, but rather as a distress response.

Pain attitudes and beliefs can be informally observed by staff in the clinical setting, but Schwartz, DeGood and Shutty (1985) have argued for more formal, empirically sound methods to be employed. The *Pain Information and Beliefs Questionnaire* (PIBQ) (Schwartz, DeGood and Shutty 1985) was the first scale published and designed to assess factual information about conservative pain management and the extent to which patients agreed with such a treatment approach.

After revisions, a modified PIBQ used 9 attitude items rated on 5 point scales, 19 true false questions on factual information about a psycho-educational videotape on chronic pain. The four factors to emerge from the PIBQ were *admission of emotionality*, *perceived relevance of videotape*, *acknowledgement of personal responsibility in treatment* and *discrimination of non-invasive treatment* (Schwartz, DeGood and Shutty 1985). Jenson, Karoly and Huger (1987) have identified two problems using the PIBQ for pain attitude assessment. The first is that only two of the factors (admission of emotionality and personal responsibility) can be considered as 'attitude' factors. Secondly, the use of videotape equipment may not always be available in the clinical setting.

Strong, Ashton and Chant (1992) raise a further concern about the authors of the PIBQ who recommend the development and use of a locally produced videotape at each pain clinic. This would introduce variability into the procedure and raise questions about validity of the PIBQ.

The *Pain and Impairment Relationship* Scale (PAIRS) was developed to measure the extent to which functioning is interfered with by chronic pain (Riley, Ahern and Follick 1988). The PAIRS comprises of 15 items scored on a 7 point Likert scale. Slater, Hall, Atkinson et al (1991) have provided support for the discriminant, convergent and divergent validity, and test-retest reliability of the PAIRS. Strong, Ashton and Chant (1992) highlight a limitation of the PAIRS due to its focus on one attitude only, that of the pain-impairment link.

Jenson, Karoly and Huger (1987) explored long term adjustment to chronic pain by asking 55 patients about their pain and five key maladaptive beliefs were identified; that the physician will cure their pain, that they themselves do not have direct control of their pain, that others are responsible for helping a person in pain, that patients with chronic pain are permanently disabled and may resist securing employment and become dependent on their doctor, and that medication is the best treatment option for chronic pain.

From this data, Jenson, Karoly and Huger (1987) developed the *Survey of Pain Attitudes* (SOPA) and used to identify three belief styles after interviewing 87 chronic pain patients participating in a pain management programme (Williams and Thorn 1989). The SOPA consists of 24 true-false items arranged within 5 sub-scales; medical cure, pain control, solicitude, disability and medication. Factor analysis showed that belief about temporal stability or how long the pain would last explained 45% of variance, thus being the important belief. Second in the hierarchy of beliefs was thinking pain is a mystery and poorly understood experience (34% variance) and third, beliefs about self-blame (22% variance). Those patients with strong beliefs about temporal stability were found to be less likely to engage and benefit from physical therapy or psychological interventions. Williams and Keefe (1991) were able to correctly identify 98% of 120 patients using two out of three of these pain beliefs. Almost three quarters of the sample (70%) believed their pain was persistent and mysterious, and this group had weaker beliefs about being able to decrease their pain and catastrophised more often. Furthermore, use of particular coping strategies could be predicted by pain beliefs and it was suggested those patients believing their pain would be short term and understandable would best respond to cognitive therapy.

After promising results a revised SOPA was developed by Jensen and Karoly (1989). The SOPA(R) contains the original 5 sub-scales, plus a 6th subscale purporting to assess the attitude that pain may be influenced by an emotional link. The SOPA (R) requires patients to indicate their agreement on a 5 point Likert scale to 35 items. The attitudes assessed by the SOPA (R) are: (1) that there is a medical cure for pain; (2) that one can control one's pain; (3) that others should assist people in pain; (4) that one is disabled because of pain; (5) that medication is the best treatment for pain and (6) that pain may be influenced by emotional states.

Strong, Ashton and Chant (1992) question whether patient's attitudes towards and beliefs about their pain differ for various conditions or treatment circumstances. They warn about using measures developed from studying a particular pain condition, with other conditions. This concern was previously posed by Bradley and Lindblom (1989), who suggest the development of specific measurement technologies for specific types of chronic pain conditions.

Williams and Thorn (1989) have developed the Pain Beliefs and Perceptions Inventory (PBPI) which assesses a patient's beliefs about pain as a mystery, self-blame and stability of pain over time. The PBPI uses a four point Likert scale to assess the strength of beliefs about (1) time: that pain is and will be an enduring part of the patient's life; (2) mystery: that pain is a mysterious and poorly understood phenomenon in the patient's life; and (3) self-blame: that the pain is caused or perpetuated by the patient.

In reviewing the validity data on the SOPA(R) and other measures assessing pain related beliefs and attitudes, Strong, Ashton and Chant (1992) question whether undue influence was exerted by compensation, employment and litigation status. Strong and colleagues (1992) tested the construct validity of the SOPA (R) and PBPI against the PDI. Using the stringent criterion of probability being less than 0.05, they found the PDI was not correlated with any sub-scales of the SOPA(R) or PBPI. The authors reported psychometric support for the SOPA(R) as an attitude scale, with adequate internal consistency, discriminant validity, a replicable factor structure and reasonable construct validity for use with patients with low back pain. These consistent findings were not reflected in the PBPI analysis, as although internal consistency and discriminant validity were found to be adequate, the factor structure did not replicate the findings of the original authors. Strong, Ashton and Chant (1992) could not provide support for the construct validity of the PBPI.

Strong, Ashton and Chant (1992) compared the SOPA (R) and PBPI and examined each scale for internal consistency, discriminant validity, factor structure, construct validity and sensitivity to age and gender effects. Strong, Ashton and Chant (1992) raised concerns about the PBPI. First, the sample from which psychometric support for the PBPI was drawn were all receiving workers compensation benefits and may have been influenced by this factor. Second, was a concern about the variety of pain scales in the sample.

A number of investigators have suggested that a common set of "cognitive errors" affect perceptions of pain and disability (Lefebvre 1981 Smith, Peck, Milano et al 1990). Turk (1996 p.18) has defined a cognitive error as a "negatively distinct belief about oneself or one's situation".

Lefebvre (1981) has developed the Cognitive Errors Questionnaire to assess the cognitive distortions in patients with low back pain. He suggested that these patients were particularly prone to such cognitive errors as "catastrophising" (anticipating and misinterpreting the outcome of an event as extremely negative), "overgeneralization" (applying the outcome of one event to the outcome of future or similar events), "personalisation" (interpreting negative events as reflecting personal meaning or responsibility), and "selective abstraction" (only attending to negative evaluations of experience).

Dufton (1989) reported that patients with chronic pain have a tendency to make cognitive errors as a result of pain related emotional difficulties, rather than to pain intensity alone.

Smith, Peck, Milano et al (1990) have suggested negative thoughts predict long term adjustment to chronic pain may mediate a portion of the relationship between disease severity and adjustment, and make a unique contribution (above other cognitive factors) to the prediction of adjustment.

Catastrophising has been reported to be a particularly relevant cognitive error influencing pain and disability (Keefe, Bradley and Crisson 1990). For example, Turner and Clancy (1986) found that during cognitive behavioural treatment for chronic pain, reductions in physical impairment and psychosocial distress were significantly related to reductions in catastrophising.

Williams and Keefe (1991) have assessed the role of pain beliefs on the outcomes of therapy and suggest three reasons why assessing pain beliefs are important. Firstly, a patient's pain behaviours may cause them to think their coping skills are ineffective. Secondly, by assessing pain beliefs, a therapist can tailor particular coping strategies to suit a particular patient. Thirdly, some pain beliefs may lead to maladaptive coping. For example, a patient believing cure is possible may be passive in their efforts to take on self-management strategies.

Measuring Pain Related Self-Efficacy

Neufield and Thomas (1977) were among the first to suggest that SE might be important to the understanding of pain. They found SE affected a person's ability to cope with acute pain. In this instance, positive SE contributed to the duration participants could tolerate a cold pressor test.

Lorig, Chastain, Ung et al (1989) developed and evaluated the Arthritis Self-Efficacy Scale (ASES) to measure perceived SE in patients with arthritis. The ASES contains three sub-scales measuring SE beliefs for physical functioning, pain management and controlling symptoms of arthritis. Lorig, Chastain, Ung et al (1989) have demonstrated construct and concurrent validity for the ASES. The ASES includes a comprehensive range of activities, symptoms and social comparisons with others "like you". The test-retest reliability supports the notion that SE is a changeable psychological state and not a permanent personality feature (Lorig, Chastain, Ung et al 1989).

Concerns about the ASES have been raised by Asghari and Nicholas (2001) who argue a measure of PSE should assess the extent to which a person in pain perseveres with a task despite pain. Out of the 20 items, only one directly asks respondents to rate confidence in undertaking an activity despite pain (*How certain are you that you can keep arthritis pain from interfering with your sleep?*).

Chong, Cogan, Randolph et al (2001) purported to measure SE by utilising 6 items from the pain beliefs Questionnaire reflecting positive self-efficacy, although early promise did not materialise into a formal psychometric measure of SE.

The Chronic Pain Self-Efficacy Scale (CPSES) (Anderson, Dowds, Pelletz et al 1995) is a 22 item questionnaire with three sub scales assessing beliefs about pain management, coping and physical function. Respondents are required to rate their perceived ability (for example, *How certain are you that you can.....*) on completing specified activity or a specific outcome. The authors have reported good reliability for the CPSES, which has been reported by Arnstein, Caudill, Mandle et al (1999).

Asghari and Nicholas (2001) raise concerns about the validity of the measures employed to test SE. It could be argued that pain self efficacy (PSE) would reflect the extent to which an individual might persevere with an activity despite their pain. However concerns have been raised whether this aspect is assessed by early instruments purporting to measure PSE (Asghari and Nicholas 2001). For example, Lorig, Chastain, Ung et al (1989) developed a questionnaire to measure SE in patients with arthritis, but includes items referring to specific tasks, such as walking particular distance in a set time. Out of the 20 items only one requires the patient to rate their confidence in doing an activity despite pain (*How certain are you that you can keep arthritis pain from interfering with your sleep?*) Asghari and Nicholas (2001) suggest an assumption is being made about how responders interpret the items, and propose there is a danger that patients may not distinguish between undertaking tasks in pain or asymptomatic states.

A measure attracting growing interest is the Pain Self-Efficacy Questionnaire (PSEQ) (Nicholas 1989) and based on Bandura's concept of self-efficacy defined as "*people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives*" (Bandura 1994). The PSEQ is a 10-item self-report numerical rating scale inventory measuring the strength and generality of a patient's beliefs about their ability to accomplish various activities despite having pain.

The 10 items require the patient to rate their confidence on ability to enjoy things, carry out household chores, socialise, cope with pain, do some sort of work, do enjoyable things, cope without medication, accomplish goals, live a normal lifestyle and become more active.

Test –retest reliability and internal consistency of the PSEQ has been reported as 0.79 and 0.92 respectively in two separate studies (Nicholas 1989).Gibson and Strong (1996) reported internal reliability (Cronbach's Alpha) of the PSEQ to be 0.94 on a group of chronic low back pain patients undergoing rehabilitation. Their study also provided evidence for validity, with a significant correlation of r = 0.78, reported between PSEQ scores and perceived capacity for work-related tasks.

Further evidence for the internal reliability of the PSEQ comes from Asghari and Nicholas (2001) who reported Chronbach's alpha at 0.92. Sensitivity of the PSEQ to treatment effects in which disability and a pain behaviour (analgesic use) were reduced, and functional activities were increased has been reported by Nicholas, Wilson and Goyen (1992) and reducing pain behaviour (analgesic medication use) by Williams, Richardson, Nicholas et al (1996, 1999).

Despite the growing attention to the PSEQ, it is appropriate to cite one paper that has questioned its utility. Skevington (1995) raises a concern with the PSEQ believing it is disadvantaged by the omission of Bandura's (1977) proposal that expectations vary in strength. Skevington (1995) also raises concerns over the shortcomings of measuring SE, namely the expectations of the patient to consciously introspect. Furthermore, the ability to make these judgements may only be possible under certain circumstances. Also of concern is that patients may be expressing no more than statements of intention, because they may be unable to judge if performance is meeting expectations.

Despite the concerns raised by Skevington (1995), the evidence presented above suggests self-efficacy is gaining prominence among chronic pain researchers when trying to explain pain related disability. Anecdotal evidence suggests the PSEQ is sensitive to discriminating change, is a brief measure which achieves high compliance, and has therapeutic utility in goal setting when identifying areas of patient concern. Confidence in using the PSEQ is undermined by a lack published research on its psychometric properties. This work will attempt to contribute to understanding of the PSEQ and meet the need for further evaluation.

Summary / Aims

This chapter has described the different approaches to measuring pain related disability. An outline of the different models of health related behaviour introduced the measurement of pain related beliefs, particularly pain self-efficacy. The chapter closed by exploring disability in the context of chronic pain related beliefs.

The current study will investigate the following aims:

1. Determine the psychometric properties of the Pain Self Efficacy Questionnaire (PSEQ) and to check the statistical properties of the other outcome measures used in the study.

2. Self-efficacy (as measured by the PSEQ) is a significant predictor of pain related disability in a musculo-skeletal chronic pain sample.

3. To investigate the clinical utility of the PSEQ within the context of evaluating the Pain Management Programme.

Chapter 4 - Methods

Design

The current study is a practice based evaluation of a cognitive behavioural pain management programme using data collected during a four-year period. A series of multiple regression models was used to assess the strength of the predicted relationship and determine the degree of disability predicted by pain self-efficacy, and to attempt to control for potential confounding variables

Ethical Considerations

The current study was part of usual clinical practice and no ethical concerns were identified. The study was registered with the Local Ethics Committee and the study approved (see Appendix 1).

Participants

All eligible participants were patients who had attended the pain management programme (PMP) at the Royal National Orthopaedic Hospital, Stanmore. Patients are primarily referred by their GP or Orthopaedic Consultant to the Rehabilitation consultant at the Royal National Orthopaedic Hospital who assesses potential suitability for the PMP. If appropriate, a referral is made for assessment by the multi-disciplinary team of physiotherapy, occupational therapy and psychology. It is only after this assessment that the final decision is taken whether to admit a patient onto the programme.

As part of the inclusion criteria, patients are expected to be fluent English speakers. Patients are also questioned about their expectations for the programme and those expecting diagnostic investigations such as magnetic resonance imaging or pain relief are excluded. Those patients awaiting medical treatment, such as surgery, are also excluded.

Patients also need to show a desire to take on self-management strategies; a high external locus of control can undermine progress. The Programme accepts highly disabled patients and those needing support with self-care.

Measures

Assessment of the patient's pain problem follows the basic elements of cognitive behavioural interviewing as described by Keefe (1988): 1) an assessment of the nature, quality and intensity of the patient's pain; 2) identifying factors that increase or decrease pain; 3) exploring work and family activities within a framework of pain or well behaviours; 4) an assessment of cognitive factors, such as pain beliefs and irrational cognitions and 5), identification of affective responses to pain such as anxiety and guilt.

A systematic review of outcome measurement in chronic pain evaluation has suggested including the following domains; pain experience, affect, cognitions and self-rated interference (Morley, Eccleston and Williams 1999). The current study follows this suggestion by utilising the ***Short Form McGill Pain Questionnaire, Pain** Intensity – numerical rating scale, Hospital Anxiety and Depression Scale, General Health Questionnaire12, The Pain Self-Efficacy Questionnaire* and the *Pain Disability Index* respectively. Goal Attainment Scaling is also utilised to enhance therapeutic gain and as an evaluation tool.

Materials

Short Form McGill Pain Questionnaire (SF-MPQ) (Melzack 1987)

The McGill Pain Questionnaire (MPQ) (1975) is a widely used measure and assesses both qualitative and quantitative aspects of the pain experience: considerable evidence has been reported to support its reliability and validity (Bowling 1991, Syrjala and Chapman 1984). The SF-MPQ has been developed to provide a shorter and more concise version of the MPQ and the main component consists of 15 descriptors (11 sensory, 4 affective). Descriptors are rated on an intensity scale as 0 = none, 1 = mild, 2 = moderate or 3 = severe. Pain scores are derived from the sum of the intensity values of the selected words. Scores can range from a minimum of 0 to a maximum of 45.

Melzack (1987) has demonstrated sensitivity to detecting treatment effects at statistical levels comparable to those of the MPQ. A two-factor solution provided evidence for factorial validity of the SF-MPQ (Melzack 1987).

Pain Intensity – numerical rating scale

Pain severity was assessed by using a numerical rating scale (NRS). Respondents are asked to rate their pain using a scale from 0 ('no pain') to 10 ('worst pain imaginable').Validity for the NRS has been reported by Jensen, Karoly and Braver (1986), while reliability has been demonstrated by Seymour (1982) and Price, McGrath, Rafii et al (1983). Karoly and Jensen (1987) recommend its use as a suitable measure of pain intensity, highlighting the positive and significant correlations with other measures of pain intensity.

Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith 1983)

The HADS provides a state measure of anxiety and depression. Each sub-scale has 7 items and the subject is required to choose one of four possible responses to a given statement. Each item is scored from 0 to 3 and so the scores obtained range from 0 to 21. A score of 11 and above is considered to be clinically significant (Zigmond and Snaith 1983). An example of the depression sub-scale is " *I still enjoy the things I used to enjoy*", and possible responses are *"Definitely as much, Not quite so much, Only a little,* and *Hardly at all*": from the anxiety sub-scale, "*I feel tense or 'wound up*'" with possible responses, "*Most of the time, A lot of the time, From time to time-occasionally,* and *Not at all*".

The HADS has been shown to have good internal consistency (Moorey, Greer, Watson et al 1991) and good validity (Zigmond and Snaith 1983). Moorey, Greer, Watson et al (1991) explored the factor structure of the HADS using 568 early stage cancer patients. A two-factor solution separating anxiety and depression explained 53% of variance, although orthogonal rotation revealed one anxiety item, " *I can sit at ease and feel relaxed*" loaded on both factors.

General Health Questionnaire (GHQ12) (Goldberg 1992)

The General Health Questionnaire is a self-report instrument designed by Goldberg (1978) to detect non-psychotic psychiatric disorder. The GHQ 12 is a shortened version of the GHQ 60 (Goldberg 1978). Respondents are asked to indicate on a four point scale ('less than usual', 'no more than usual', 'rather more than usual' or 'much more than usual') the strength of a particular symptom or behaviour. Responses are scored 0, 1, 2 or 3 respectively and summed to give a total score ranging from 0 to 36.

Psychometric support for the GHQ 12 is provided by Goldberg (1992) Internal consistency using Cronbach's alpha ranged from 0.82 to 0.90 and split-half reliability was 0.83, with test-retest reliability at 0.73.

The Pain Self-Efficacy Questionnaire (PSEQ) (Nicholas 1989)

The PSEQ is based on Bandura's concept of self-efficacy defined as "*people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives*" (Bandura 1990). The PSEQ is a 10-item self-report numerical rating scale inventory measuring the strength and generality of a patient's beliefs about their ability to accomplish various activities despite having pain.

The 10 items require the patient to rate their confidence on ability to enjoy things, carry out household chores, socialise, cope with pain, do some sort of work, do enjoyable things, cope without medication, accomplish goals, live a normal lifestyle and become more active.

Patients select from a seven-point scale ranging from zero *not at all confident* to six *completely confident.* Scores can range from 0 to 60 with higher scores indicating stronger self-efficacy beliefs. Examples of items include: 'I can do most household chores (e.g., tidying-up, washing dishes, etc.), despite the pain' and 'I can still do many of the things I enjoy doing, such as hobbies or leisure activity, despite the pain'.

Test –retest reliability and internal consistency of the PSEQ has been reported as 0.79 and 0.92 respectively in two separate studies (Nicholas 1989).Gibson and Strong (1996) reported internal reliability (Cronbach's Alpha) of the PSEQ to be 0.94 on a group of chronic low back pain patients undergoing rehabilitation. Their study also provided evidence for validity, with a significant correlation of $r = 0.78$, reported between PSEQ scores and perceived capacity for work-related tasks. Further evidence for the internal reliability of the PSEQ comes from Asghari and Nicholas (2001) who reported Chronbach's alpha at 0.92.

Sensitivity of the PSEQ to treatment effects aimed at reducing disability has been reported by Nicholas, Wilson and Goyen (1992) and reducing pain behaviour (analgesic medication use) by Williams, Richardson, Nicholas et al (1996, 1999).

Pain Disability Index (PDI) (Pollard 1984)

Pollard (1984) has developed a brief self-report measure of disability, the PDI and determines the degree to which chronic pain interferes with various daily activities. The PDI asks the respondent to rate the degree to which pain interferes with functioning in seven broad areas: family / home responsibilities, recreation, social activity, occupation, sexual activity, self care and life support activity.

The seven NRS type items range from 0 to 10. Each item score can range from 0 (no interference) to 10 (total interference). Scores are summed with a minimum of 0 and a maximum of 70. Thus the total PDI score can range from 0 to 70. PDI scores are summed and converted to a percentage.

Tait, Chibnall and Krause (1990) suggest using the median score as the cut off to distinguish high from low disability as seen in their study using 442 chronic pain patients. The median PDI score for the low disabled group was 34.5 (sd 9.32) and 55.9 (sd 5.78) for the high disability group.

Pollard (1984) has reported discriminative validity and good internal consistency (alpha reliability = 0.87). Concurrent validity for the PDI was supported by Tait, Chibnall and Krause (1990) who reported PDI scores significantly related to patient reports of psychological distress and pain severity. Construct validity was shown when nine variables were found to predict PDI scores, including quality of life and intensity of psychosomatic symptoms.

Copies of all psychometric measures are provided in the Appendix.

Goal Attainment Scaling

Prior to discharge goals are set using the *Goal Attainment Scaling* (GAS) method originally described by Kiresuk and Sherman (1968).

Chronic pain is multidimensional and standardised outcome measures may fail to detect important changes. The detection of meaningful changes over time might be missed if patient focussed factors are not measured. Goal Attainment Scaling clarifies the focus of intervention for patients with multiple problems and helps problems to be differentiated. The process of goal setting clarifies who is responsible for change and encourages the patient to gain control. It could be argued that GAS is particularly appropriate for therapeutic interventions that focus on making life style changes related to health promotion and adapting to chronic illness.

The application of GAS in chronic pain settings has been described by Williams and Stieg (1987), Zaza, Stolee and Prkachin (1999), and, Fisher and Hardie (2002) who recommended that GAS can be used both to first evaluate pain management outcomes and secondly, to help generalise programme activities into relevant real life applications. Williams and Stieg (1987) reported GAS to have a therapeutic effect of its own in a pain management setting. Patients who participated in the GAS process rated themselves more highly motivated, desire to change and actual change compared with patients who did not participate.

In the current Programme, patients become familiar with the goal focussed approach to pain management. At the initial assessment, patients are encouraged to consider what they would change within a framework of realistic and achievable aims. At the start of each week on the Programme goals are set. Weekend goals are also set to help patients to start conceptualising and applying the aims of the Programme within home life settings. The current author facilitates a group session during the second week to explain the goal setting process and to encourage patients to start considering their discharge goals. The patient is asked to reflect on those areas of their life that have been detrimentally affected by the chronic pain and whose quality of life could be improved by addressing such areas.

Commonly noted domains highlighted by the patients on the Programme include improving physical fitness, engaging in recreational activities, improving independence and returning to work.

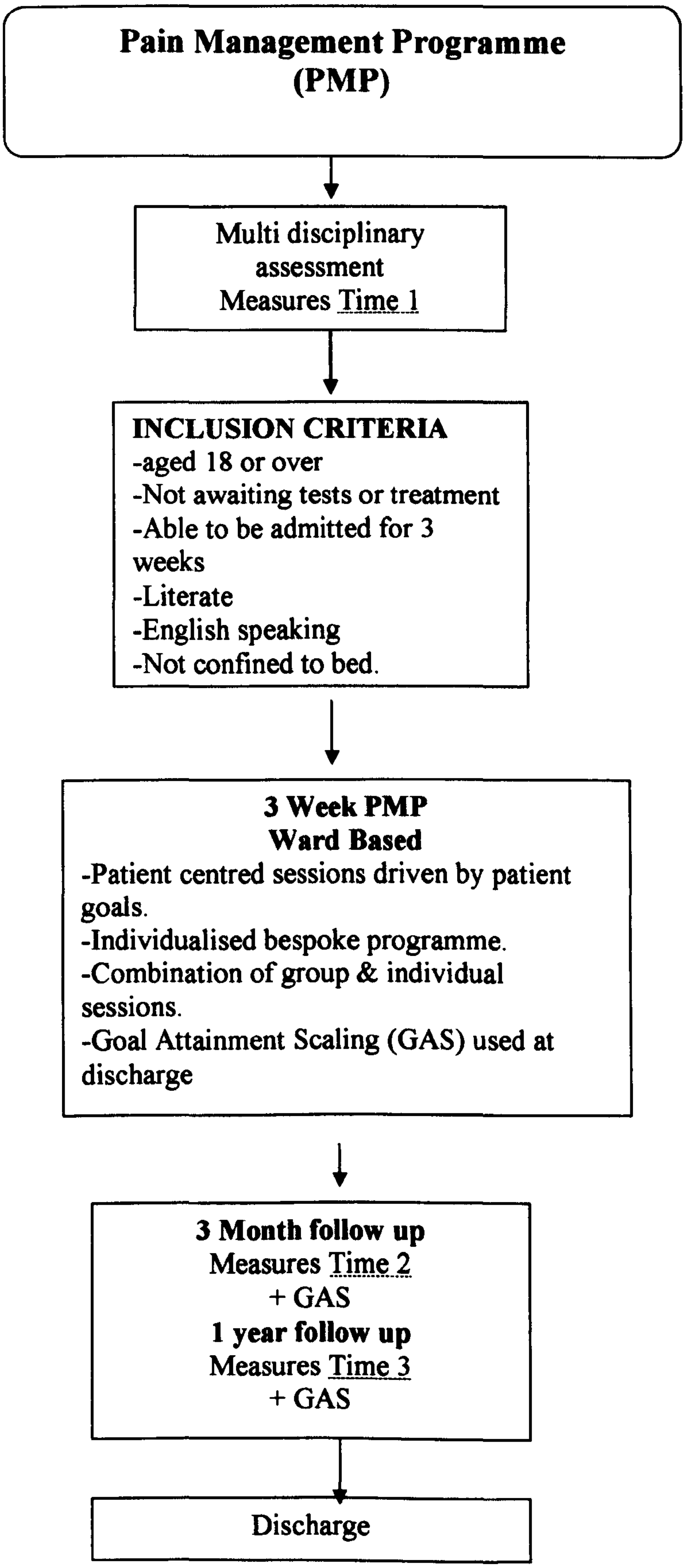
The formal discharge goal setting session employing GAS first occurs in the latter part of the third and final week. An individual session is scheduled towards the end of Week 3 and discharge goals are set in collaboration with an experienced member of staff. GAS is a flexible and relatively easy technology to use and can be adapted to reflect different disciplines. Goal areas are first identified by the patient. Each goal has five levels of expected outcome; remaining at baseline (scored as -1), three steps of improvement (scored as 0, +1 and +2 respectively) and one of deterioration (scored as -2). This five point scoring system allows for detecting progress towards a goal even if not fully met. The GAS scores are calculated by summing the individual scores and converting to a T-score to enable direct comparison and pooling of data scores (Kiresuk and Sherman 1968). Goals are selected which are achievable within three months, the time of the first follow up session. The patient is given a copy of the goal sheet. Goals are reviewed, scored and reset at each of the follow up sessions.

Demographic Information

A questionnaire was developed to collect demographic information on gender, age, site of pain, duration of pain and number of pain-related surgeries.

To aid clarity a process map of the Pain Management Programme is shown in Figure 3.

Figure 3. Process Map of the Pain Management Programme as used for Sections B and C



Procedure

The Pain Management Programme

Patients are admitted with the explicit understanding no further diagnostic tests or medical interventions will be offered during the admission.

The pain management programme typically lasts three weeks and patients are admitted onto the Rehabilitation Ward from Monday to Friday. The regular Monday admissions mean at any time there will be patients in weeks 1, 2 and 3 of their Programme. The rationale for this rolling admissions model, (or "open group") and not employing cohorts of patients who all start and complete the Programme together, has been recommended by Keefe, Beaupre and Gil (1996) who describe patients in weeks 2 and 3 as "veterans" able to model new behaviours. These more experienced patients can encourage new patients to engage in the Programme.

Each patient is individually assessed on the first day and intervention goals are jointly identified between patient and therapist and a programme is designed to meet those goals. Results from assessment data (Time 1) help to guide programme design. The intervention can be designed to target specific maladaptive beliefs, such as "*I cannot exercise due to my back pain*", and by drawing on traditional cognitive behavioural principles uses guided mastery, modelling, education and goal setting to achieve behaviour change. The aim of the Programme is not to cure the pain rather to improve the patient's quality of life. Although it is worth noting that improved posture and fitness can lead to reduction in pain. It is hoped that the Programme will encourage the patient to be more independent and better equipped to manage their chronic pain. The Programme consists of individual and group sessions of physiotherapy, occupational therapy and psychology. Medical cover is also provided. The core components of delivery are didactic and interactive teaching, skills acquisition and, practice and implementation.

Medical Input

Patients are clerked by a Senior Registrar on day one of the Programme. A medical history is taken and if appropriate a drug chart prepared. Medication usage is reviewed as excessive and dangerous use has been observed. Some patients have displayed high sedation and confusion due to their polypharmic status and need to be carefully assessed in order to ensure they are able to engage on the programme. Patients will then be put on a safe regimen. At this stage patients may ask for their medications to be changed by either reduction or new prescription.

Medical cover is provided throughout the admission, although rarely called upon. Some patients will complain of increased pain due to using muscles and ligaments that may have atrophied due to pain–related guarding or protection. The patient will be reassured and advised to pace down their activities. If new symptoms occur, then the appropriate medical care is provided and may involve investigations and treatment at another hospital. In such an event, the patient will be discharged and invited to restart the Programme when fit to do so. The Senior Registrar will have a limited role on the Programme in order to promote the de-medicalisation of chronic pain approach. Patients on the Rehabilitation ward have 24 hour nursing cover and it is the nursing staff who make a more substantial contribution to the Programme.

The nurses provide support with self-care activities such as washing and dressing. There is a wide range of disability with some patients needing extensive support from the nursing staff while other patients are independent with self-care activities. The nurses administer the drug round and provide feedback to other members of the team regarding medication use. Daily sessions run from 9.00am until 4.30 pm each day, but the Programme continues outside of these times. The nurses encourage patients to practice the pain management strategies during their leisure time on and around the ward. For example, a patient using sleep as a coping strategy will be encouraged to develop more adaptive sleeping habits, or a very disabled patient will be encouraged to achieve small goals around the ward, such as washing independently. The nurses are able to observe the patients around the ward and provide valuable feedback about pain behaviours and coping. The nurses are also able to offer informal support to patients struggling with demands of the programme or being on the ward.

The nurses act as an important link between the patients and other members of the therapy team.

Physiotherapy Input

A team of four physiotherapists deliver to the programme. Group sessions combine with educative, discussion and practical components to encourage physical rehabilitation. Regular group discussions include distinguishing between hurt and harm, the benefits of regular exercise and the effects of de-conditioning. The physiotherapists will encourage graded exposure to exercise and provide a safe and supportive environment to test boundaries of physical abilities. Reducing fear avoidance and increasing confidence to engage in physical activity are important aims for the physiotherapists, as well as promoting the benefits of regular systematic stretching. Each day of the Programme starts with a stretch session led by a physiotherapist. On the Friday of each week the stretch session is taken by a patient volunteer.

All physical activities are underpinned by the principles of pacing and goal setting. Pacing as described by Gil, Ross and Keefe (1988) is moderate activity-rest cycling. It is a strategy to avoid the over-activity – pain – rest cycle shown by many patients. Over-activity and pain exacerbation is challenged by setting baselines of activity and slowly increasing within safe limits.

Occupational Therapy Input

Occupational therapy input focuses on function in three distinct areas; activities of daily living, occupation and leisure pursuits. Pacing and guided imagery relaxation are discussed in groups and practice is encouraged outside of the formal programme. Functional ability is tested in real life settings of dedicated rooms within the Occupational Therapy department. A fully equipped kitchen, bathroom and bedroom allow the practice of developing new strategies and techniques for improving function and independence. Patients can explore new methods of doing routine activities of daily living such as cleaning and preparing simple meals.

Individual Occupational Therapy sessions will often identify emotional difficulties that can initiate a referral to the current author in his role as Health Psychologist.

Health Psychology Input

The current author delivers group and individual cognitive behavioural therapy sessions. Parker, Dumat and Booker (2000) argue that a major goal of pain management should be to change unhelpful or negative thinking by cognitive restructuring. Weekly group therapy sessions encourage patients to identify patterns of unhelpful thinking and exploring alternative and more adaptive thinking. Additional group sessions focus on understanding the multi-factorial nature of chronic pain, goal setting and maintaining change.

Individual therapy sessions are scheduled based on findings from the pre-admission assessment or during the Programme, by referrals from members of the therapy team. Some patients may struggle to engage on the Programme or be resistant to change and individual therapy sessions can help encourage progress by identifying and modifying barriers undermining change. Individual sessions can also be opportunities for discussions with family members. Over solicitous behaviour from family members can augment disability so it is important for them to be involved and support the patient in implementing change.

Although the different disciplines make unique contributions, all adhere to the basic principles of pacing, relaxation, graded exposure to exercise, changing unhelpful thinking and goal setting in order to achieve functional restoration.

Data Collection

Patients are invited to attend a pre-admission session and the first battery of measures is administered (Time 1). As part of the follow up procedure, patients are invited to attend two follow up sessions at three and twelve months post discharge. The battery of psychometric measures is re-administered at each follow up session. So data is collected at Time 1 (assessment), Time 2 (follow up at three months) and Time 3 (follow up at twelve months). Compliance and response rates vary from measure to measure and explains differences in the total numbers used for statistical analysis. At Time 1, all measures exceeded 250 cases, Time 2 exceeded 150 cases and Time 3 exceeded 100.

Goal Attainment Scaling (GAS) is employed to set goals prior to discharge from the Programme, and reset at three month follow up. The GAS scores are collected at three and twelve month follow-up.

Statistical Analyses

All data was examined using SPSS version 14 (Norusis 2005). In all analyses, a significance level of 5% was considered as statistical evidence of effect ($p = 0.05$, confidence level = 95%)

Descriptive statistics (e.g. means, medians, standard deviations, skewness) were calculated for all variables. All variables were tested for assumptions of homogeneity and parametric tests were considered justified.

Reliability of the PSEQ was checked by first assessing internal consistency using Cronbach's (1970) Alpha method. Test retest method was also employed.

Principal components analysis was used to examine the factor structure of the PSEQ and to demonstrate a stable structure, two cohorts were identified and examined. Highest number of data sets were seen in 2003 and this was selected as Cohort 1 (n=101), and the data from 2002, 2004 and 2005 was combined to make Cohort 2 (n=159).

Pearson's product-moment test of correlation was employed to test the strength of a possible relationship between disability and pain self-efficacy. Further analysis tested the relationships between disability and the independent variables of depression, anxiety and pain intensity. Further, the associations between GAS scores and the other variables are provided.

In order to determine the degree of disability predicted by pain self-efficacy, multiple regression stepwise method was used. Each measurement time was examined using the same method. To check for factors which may have confounded the interpretation of data involved plotting the residuals to ensure that the assumptions of homoscedasticity and linear relationships were met in all regression analyses.

To test clinical sensitivity of the PSEQ and the independent variables, pre and post treatment analysis employed ANOVA tests with post hoc Bonferroni comparisons.

Chapter 5.

Results

This chapter is divided into three parts corresponding to the three aims of this research.

1. To determine the psychometric properties of the pain self efficacy questionnaire (PSEQ) and to check the statistical properties of the other outcome measures used in the study.

Patient Demographics

Table 1. Gender split of sample

Gender	Time 1 N (%)	Time 2 N (%)	Time 3 N (%)
Male	98 (37.7)	56 (34.4)	35 (32.4)
Female	162 (62.3)	107 (65.6)	73 (67.6)
Totals	260	163	108

The ages ranged from 18 to 85, with a mean age of 46.87 years.

Table 2. Site of pain

Site	N = 260	(%)
Low back	37	(14.2)
Low back and other	137	(52.7)
Neck	1	(0.4)
Other	75	(28.8)

It can be seen in Table 2 that most patients suffered with predominant low back pain, but with chronic pain in other sites, such as leg, hip and feet.

Table 3. Number of pain related surgical procedures

Number of surgical procedures	N (%)
0	120 (52.8)
1	35 (15.4)
2	22 (9.6)
>2	50 (22.2)
Totals	227

It can be seen in Table 3 that just under half (47.2%) had undergone at least 1 surgical procedure, and just under a quarter (22.2%) had 2 or more procedures.

Distribution characteristics of the study outcome measures.

It is important to ensure parametric assumptions are met, e.g, skewness and kurtosis between -1 and +1 for all variables. Parametric assumptions were not violated. Descriptive data for all measures at Times 1, 2 and 3 are given in Tables 4, 5 and 6 respectively. Normal distributions were estimated using histograms (see Figures 4 and 6 – 11).

Table 4. Descriptive data for Time 1

Variable at Time 1	**n**	**Mean**	**S.D.**	**Skewness**	**Skewness Standard error**	**Kurtosis**	**Kurtosis Standard Error**
Pain Intensity	280	6.26	2.035	-.486	.146	-.351	.292
Pain Description	277	16.99	8.948	.419	.146	-.351	.292
Disability	282	60.89	18.309	-.550	.145	.142	.289
Pain Self-Efficacy	249	26.61	12.038	.151	.154	-.642	.307
Distress	281	18.49	7.631	.429	.145	-.727	.290
Anxiety	279	10.46	4.585	.022	.146	-.854	.291
Depression	279	8.51	3.976	.331	.146	-.296	.291

It can be seen that skewness and kurtosis values are between -1 and 1 for all variables, thus supporting parametric assumptions. These findings were repeated at Times 2 and 3, and shown in Tables 5 and 6 respectively.

Table 5. Descriptive data for Time 2

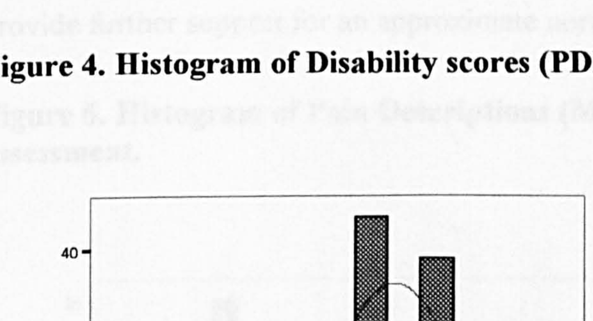
Variable at Time 2	**n**	**Mean**	**S.D.**	**Skewness**	**Skewness Standard error**	**Kurtosis**	**Kurtosis Standard Error**
Pain Intensity	169	6.14	2.053	-.353	.187	-.429	.371
Pain Description	168	17.09	9.986	.514	.187	-.492	.373
Disability	169	55.69	21.551	-.428	.187	-.609	.371
Pain Self-Efficacy	164	31.35	12.679	-.059	.190	-.624	.377
Distress	166	15.58	8.123	.533	.188	-.468	.375
Anxiety	165	9.76	4.697	.068	.189	-.568	.376
Depression	165	7.84	4.179	.179	.189	-.637	.376
GAS score	60	53.30	12.80	-.666	.309	-.233	.608

Table 6. Descriptive data for Time 3

Variable at Time 3	n	Mean	S.D.	Skewness	Skewness Standard error	Kurtosis	Kurtosis Standard Error
Pain Intensity	114	6.34	2.334	-.517	.226	-.352	.449
Pain Description	114	16.39	10.524	.475	.226	-.805	.449
Disability	113	57.44	22.793	-.504	.227	-.481	.451
Pain Self-Efficacy	110	31.55	13.252	-.033	.230	-.531	.457
Distress	112	16.63	8.795	.301	.228	-.784	.453
Anxiety	113	9.08	4.749	.255	.227	-.768	.451
Depression	113	7.24	4.471	.431	.227	-.822	.451
GAS score	39	51.18	13.00	.019	.378	-.474	.741

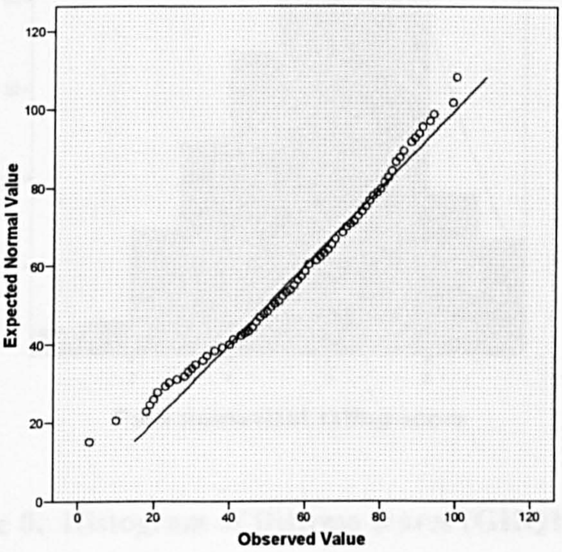
All variables were examined using a histogram and are shown with normal distribution curves imposed.

Figure 4. Histogram of Disability scores (PDI) at Time 1 – assessment.



Further exploration of the disability scores used a normal probability plot, where each observed value is paired with its expected value from the normal distribution and is shown in Figure 5.

Figure 5. Normal probability plot of Disability scores (PDI) at Time 1 – assessment.



It can be seen in Figure 5 that the points generally fall along a straight line and provide further support for an approximate normal distribution.

Figure 6. Histogram of Pain Descriptions (McGill SF MPQ) at Time 1 – assessment.

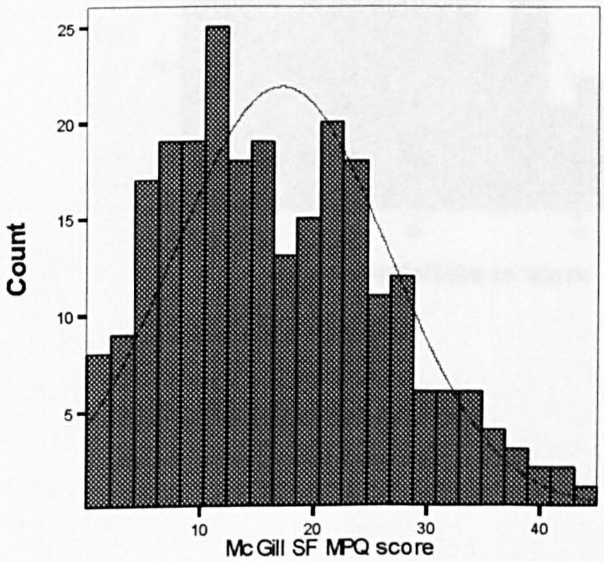


Figure 7. Histogram of Pain Intensity (NRS) at Time 1 – assessment.

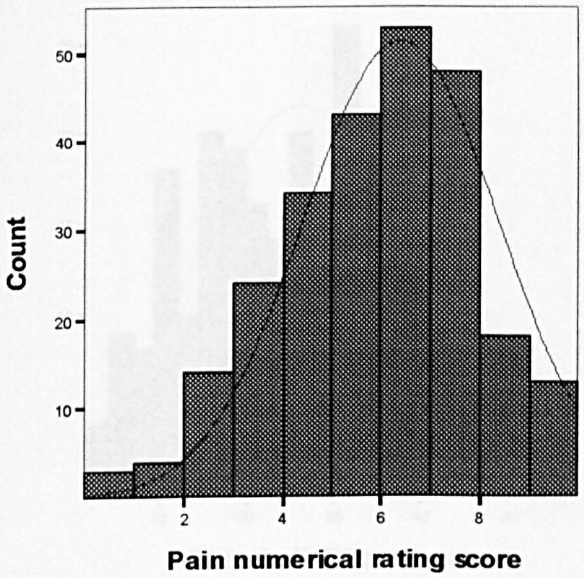


Figure 8. Histogram of Distress scores (GHQ12) at Time 1 – assessment.

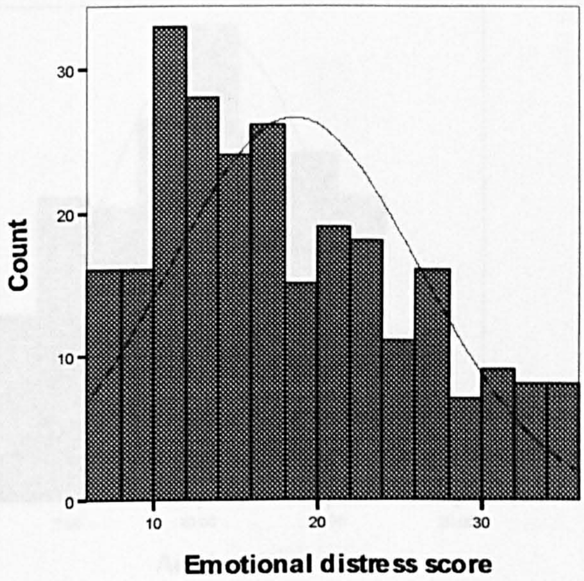


Figure 9. Histogram of Pain Self-Efficacy (PSEQ) at Time 1 – assessment.

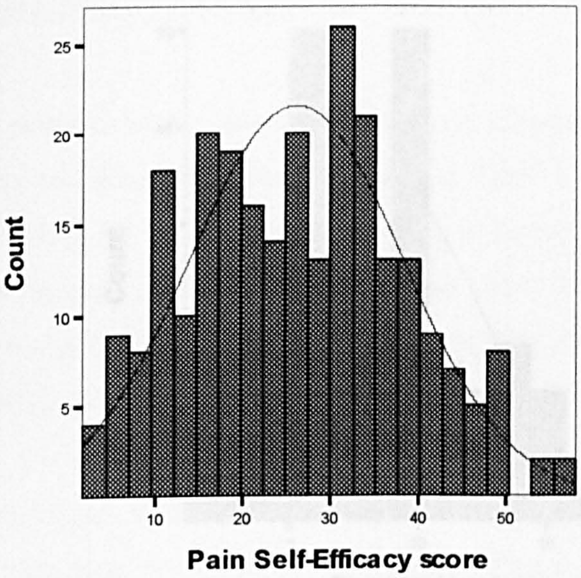


Figure 10. Histogram of Anxiety (HADS) at Time 1 – assessment.

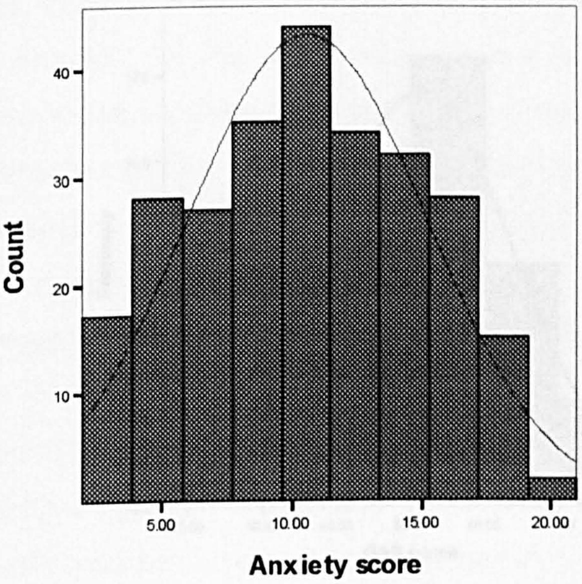


Figure 11. Histogram of Depression (HADS) at Time 1 – assessment.

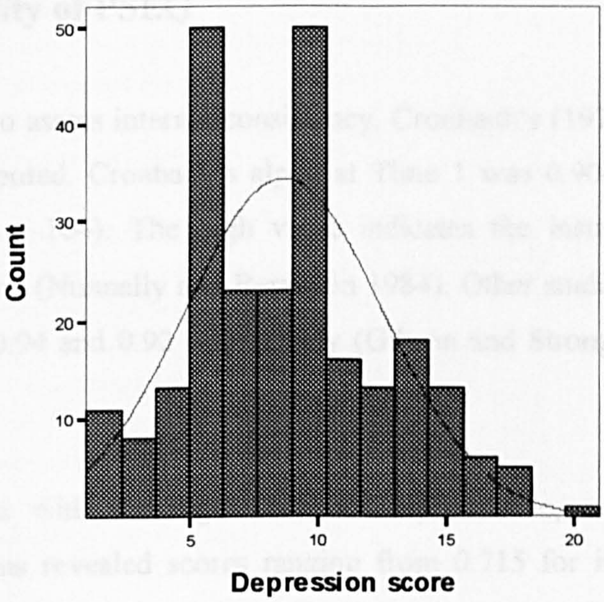
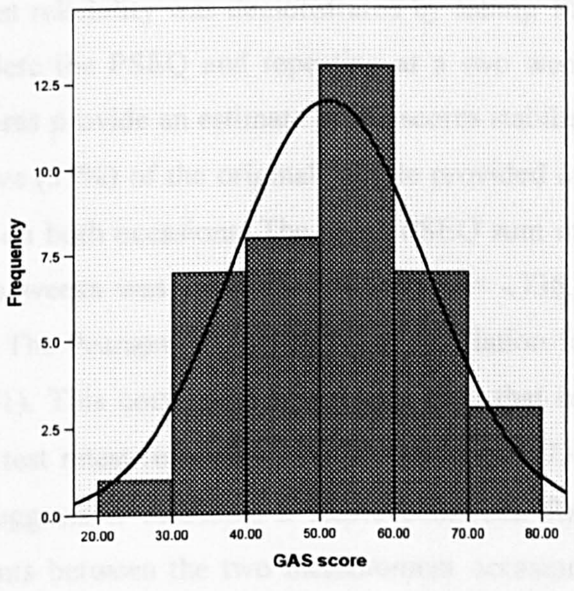


Figure 12. Histogram of GAS score at 1 Year follow up



Tests of normality suggest the data is drawn from an approximately normal distribution and therefore appropriate to use parametric tests of analyses while taking account of the nature of the score categories initially.

Psychometric properties of PSEQ – behaviour of the measure

Reliability of PSEQ

In order to assess internal consistency, Cronbach's (1970) method of alpha reliability was computed. Cronbach's alpha at Time 1 was 0.904 (n = 249) and Time 2 was 0.934 (n = 164). The high value indicates the instrument has excellent internal consistency (Nunnally and Bernstein 1984). Other studies have reported Chronbach's alpha at 0.94 and 0.92 respectively (Gibson and Strong 1996, Asghari and Nicholas 2001).

Consistent with the high Cronbach alpha value, examination of the item-total correlations revealed scores ranging from 0.715 for item 4 and 0.946 for item 6. Nicholas (2005) reported 0.5 for item 7 (Can cope without medication) and all other items had an item-total correlation of 0.7 or greater.

Test retest reliability was demonstrated by asking 100 participants on the waiting list to complete the PSEQ and repeating at a two week interval. Correlations between these scores provide an estimate of the scores stability without treatment intervention. Thirty five (35%) of the original sample provided usable data, having completed the measure on both occasions. The mean PSEQ sum initially was 28.91 (s.d.11.97) and after two weeks was 29.26 (s.d. 12.50), $t = -.736$, ($p = .467$), (i.e., no significant change). The Pearson product-moment correlation for the PSEQ sums was $r = 0.950$ ($p < 0.001$). This correlation is stronger than that reported by Nicholas (2005) who reported test retest reliability over 3 months of 0.73. The test-retest reliability of the PSEQ suggests it measures a stable construct. Reliability analyses of correlation coefficients between the two measurement occasions are given in Table 7 for each item and range from 0.715 (Can cope with pain) to 0.946 (Can still do things I enjoy).

Table 7. Correlation coefficients for PSEQ test retest reliability

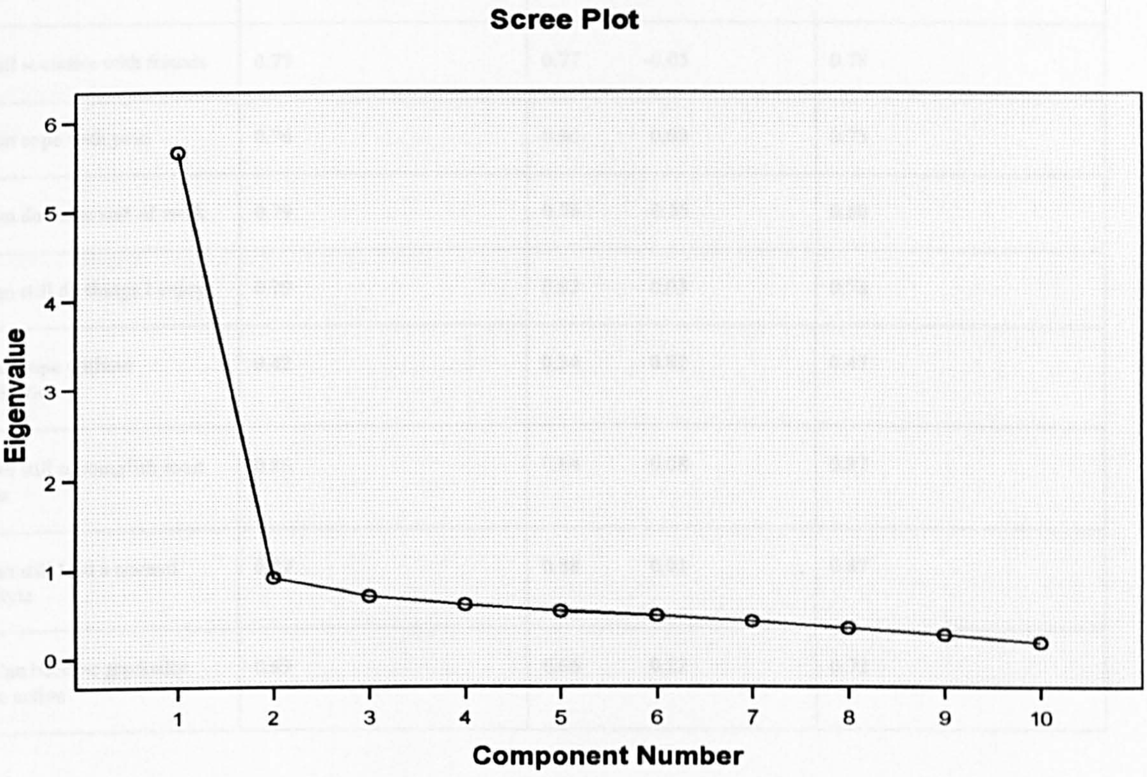
Item	
1. Still enjoy things	.852**
2. Still do household chores	.824**
3. Still socialise with friends	.864**
4. Can cope with pain	.715**
5. Can do some sort of work	.885**
6. Can still do things I enjoy	.946**
7. Can cope without medication	.825**
8. Can still accomplish most goals	.877**
9. Can still lead a normal lifestyle	.909**
10. Can become gradually more active	.891**
Total scores	.950**

(** = p<0.001)

Exploring structure of PSEQ – factorial validity

The scree plot is examined to decide how many factors to extract. It can be seen in Figure 13 that 1 factor has been identified.

Figure 13. Scree plot of PSEQ scores at Time 1



A principal components analysis was computed to assess the factor structure of the PSEQ. Using the combined data from Time 1 from years 2002, 3, 4 and 5 (n=260), a 1 factor solution was obtained, using an eigenvalue of 1 as a cut-off accounting for 56% of the total variance. Of the 10 items, 9 loaded highly on the factor, with loadings ranging from 0.69 for item 10 (Can become gradually more active) to 0.87 for item 9 (Can still lead a normal lifestyle). Item 7 (Can cope without medication) loaded 0.42 suggesting the need for further analysis. To demonstrate a stable structure, two cohorts were identified and subjected to further factor analysis. Cohort 1 consisted of data from 2003 and Cohort 2 from years 2002, 2004 and 2005 pooled together. Item factor loadings are given in Table 8.

Table 8. PSEQ factor loadings for principal components analysis

	Analysis 1. Combined data n = 260	Analysis 2. Cohort 1 n = 101		Analysis 3. Cohort 2 N = 159
	Factor 1	Factor 1	Factor 2	Factor 1
1. Still enjoy things	0.72	0.64	-0.06	0.79
2.Still do household chores	0.72	0.70	-0.37	0.74
3.Still socialise with friends	0.77	0.77	-0.05	0.78
4.Can cope with pain	0.76	0.80	0.09	0.73
5.Can do some sort of work	0.79	0.76	-0.35	0.80
6.Can still do things I enjoy	0.79	0.82	0.03	0.78
7.Can cope without medication	0.42	0.34	0.82	0.47
8.Can still accomplish most goals	0.86	0.84	0.08	0.87
9.Can still lead a normal lifestyle	0.87	0.88	0.01	0.87
10.Can become gradually more active	0.69	0.66	0.22	0.72

Results from cohort 1 failed to replicate the 1 factor solution, with item 7 (Can cope without medication) loading with a value of 0.82 on Factor 2. Results from cohort 2 showed similar loadings to the combined data set, with item 7 having the lowest loading of 0.47.

Nicholas (2005) found a 1 factor solution accounting for 58.6% of the total variance, with all items having factor loadings above 0.64 (including item 7 - Can cope without medication). Nicholas argues item 7 should be retained because is has strong construct validity, and cites Ralphs, Williams, Richardson et al (1994) who demonstrated that the item was significantly correlated with mean morphine dose in in-patients with chronic pain attending a pain management programme. Although this may not necessarily be part of the self efficacy construct as morphine adherence may be an entirely different variable.

Predictive validity

The validity of the PSEQ was further examined by splitting into high and low self efficacy groups based on a median split of the PSEQ (median score = 26). The mean PSEQ score for the low group was 16.14 (s.d. = 6.10) and the mean PSEQ score for the high self efficacy patients was 36.33 (s.d. = 7.14). Table 9 shows means of the dependent variables based on high / low self efficacy split.

Table 9. Means of dependent variables based on high / low Pain Self-Efficacy split

Dependent variable	Low PSEQ		High PSEQ	
	Mean	s.d.	Mean	s.d.
Disability	70.76	16.78	54.46	15.91
Pain Intensity	6.89	1.92	5.89	1.89
Pain description	19.38	9.90	14.68	8.48
Anxiety	11.17	4.29	8.31	4.31
Depression	9.65	3.76	6.16	3.60
Distress	22.35	7.51	15.11	5.85

The results from Table 9 suggest that on all dependent variables based on high/low PSEQ split those with high SE suffer less pain, are less disabled and benefit from better mood (lower distress, anxiety and depression). Multi-variate analysis of variance was used to further test these relationships using high / low PSE as the independent variable.

Inspection of Table 9 suggests a pattern of significant differences between the groups. Multi-variate analysis of variance showed that high PSE patients reported less pain, less disability and better mood (Hotelling's Trace, F=49.610, p=<0.0001 suggesting significance for the whole model) than their low PSE counterparts.

These findings were consistent over the measurement times for disability, distress, anxiety and depression. At Time 2 pain intensity fell out of the model. Pain quality did not reach statistical significance. These differences provide evidence that self-reported PSE differentiates among patients according to degree of disability, mood and pain intensity.

Association between disability and independent variables

Initial exploration of the relationship between disability and pain self-efficacy by plotting a scattergram strongly suggested an inverse relationship and is shown in Figure 14.

Figure 14. Scattergram of disability and pain self-efficacy at Time 1

Figure 14 suggests an inverse relationship between disability and pain self-efficacy. Further analysis using Pearson's test of correlation was used to determine the strength of that association and of the other independent variables. Nicholas (2005) argues there is no "gold standard" measure of SE against which the PSEQ can be compared, but self-efficacy theory would predict an inverse relationship between the PSEQ and disability. Pearson product-moment correlation between the PSEQ and the other assessment measures were examined and are given in Table 10.

Table 10. Correlation coefficients between disability and independent variables at Time 1.

	Depression	Anxiety	Distress	Pain Intensity	Pain Descriptors	Pain Self Efficacy
Pain Disability	0.491 **	0.292 **	0.407 **	0.373 **	0.272 **	-0.581 **
Depression		0.537 **	0.617 **	0.194 **	0.221 **	-0.617 **
Anxiety			0.666 **	0.244 **	0.290 **	-0.401 **
Distress				0.273 **	0.345 **	-0.534 **
Pain Intensity					0.460 **	-0.301 **
Pain Description						-0.281 **

** significant at p<001.

All independent variables were found to be significantly correlated with disability at Time 1. As expected, the strongest relationship can be seen between disability and pain self-efficacy, an inverse relationship of -0.581 ($p<0.001$). Further, it can also be seen that pain self-efficacy was inversely related to all other measures.

Table 11. Correlation coefficients between GAS scores and other variables

	3 month follow up	1 year follow up
Pain Disability	-0.352 **	-0.288
Depression	-0.330 *	-0.381 *
Anxiety	-0.119	-0.300
Distress	-0.312 *	-0.416 *
Pain Intensity	-0.244	-0.425 *
Pain Description	-0.050	-0.453 **
Pain Self-Efficacy	0.389 **	0.318

** significant at p<.01, * significant at p<.05

It can be seen in Table 11 that GAS scores were related to other variables in expected directions, particularly inversely related to pain disability and positively related with pain self-efficacy.

2. Self-efficacy (as measured by the PSEQ) is a significant predictor of pain related disability in a musculo-skeletal chronic pain sample.

As reported earlier, there were strong relationships between disability and the other variables. Further analysis was needed to determine the degree of disability predicted by pain self-efficacy. Multiple regression analyses were calculated for the three measurement times and allowed identification of variables most predictive of scores on the PSEQ. In order to determine the degree of disability predicted by pain self-efficacy, multiple regression stepwise method was used. Each measurement time was examined using the same method. To check for factors which may have confounded the interpretation of data involved plotting the residuals to ensure that the assumptions of homoscedasticity and linear relationships were met in all regression analyses. The data was found to be evenly dispersed around the regression line.

The following predictor variables were entered; pain self efficacy, depression, anxiety, distress, pain intensity and pain description.

Time 1 (years 2002, 03, 04, 05) Using the stepwise forward method, a significant model emerged (F1,222 = 126.067, p <0.0005. Adjusted R square 0.359. Significant variables at the p<0.05 level are shown below in Table 12.

Table 12. Multiple regression analyses at Time 1 (n = 282). Criterion variable disability (Pain Disability Index scores).

Predictor Variable	Beta	Adjusted R Square	p
Pain Self Efficacy	-0.460	0.362	p<0.0005
Pain Intensity	0.175	0.027	p<0.005
Depression	0.149	0.015	p<0.05

Time 2 (years 2002, 03, 04, 05) Using the stepwise forward method, a significant model emerged (F1,158 = 129.569, p <0.0005. Adjusted R square 0.447. Significant variables are shown below in Table 13.

Table 13. Multiple regression analyses at Time 2 (n = 169). Criterion variable disability (Pain Disability Index scores).

Predictor Variable	**Beta**	**Adjusted R Square**	**p**
Pain Self Efficacy	-0.301	0.451	p<0.0005
Pain Intensity	0.340	0.102	p<0.0005
Depression	0.298	0.045	p<0.0005

Time 3 (years 2002, 03, 04, 05) Using the stepwise forward method, a significant model emerged (F1,106 = 131.482, p <0.0005. Adjusted R square 0.549. Significant variables are shown below in Table14.

Table 14. Multiple regression analyses at Time 3 (n = 113). Criterion variable disability (Pain Disability Index scores).

Predictor Variable	**Beta**	**Adjusted R Square**	**p**
Pain Self Efficacy	-0.482	0.554	p<0.0005
Pain Intensity	0.394	0.087	p<0.0005

Multiple regression using the stepwise forward method found pain self-efficacy the strongest constant significant predictor of disability at all three measurement times, explaining 36, 45 and 55% of the variance. Of the other predictor variables, pain intensity and depression showed significant contribution, although it can be seen that depression falls out from the model at time 3 (1 year follow up).

3. Investigating the clinical utility of the PSEQ within the context of evaluating the Pain Management Programme.

In order to test clinical sensitivity, the means and standard deviations of all variables were first calculated and are shown in Table 15.

Table 15. Means and standard deviations – pre (Time 1), post 3 month follow up (Time 2) and 12 month follow up (Time 3).

Variable	**Time 1** **mean (s.d)**	**Time 2** **Mean (s.d.)**	**Time 3** **Mean (s.d.)**
Pain intensity	6.3 (2.0)	6.1 (2.1)	6.3 (2.3)
Pain description	17.0 (8.9)	17.1 (10.0)	16.4 (10.5)
Pain disability	60.9 (18.3)	55.7 (21.6)	57.4 (22.8)
Pain self efficacy	26.6 (12.0)	31.4 (12.7)	31.6 (13.3)
Distress	18.5 (7.6)	15.6 (8.1)	16.6 (8.8)
Anxiety	10.4 (4.6)	9.8 (4.7)	9.1 (4.7)
Depression	8.5 (4.0)	7.8 (4.2)	7.2 (4.5)

Initial inspection of the means suggested improvements in the measures of mood, disability and self-efficacy. To test clinical sensitivity of the PSEQ and other variables, pre and post treatment analysis employed a one way within subjects ANOVA design. The within subjects factor, the measurement time had three levels, Time 1, 2 and 3. The dependent variable was the response.

Assumptions of normality and homogeneity of variance were checked by plotting the residuals which were approximately normal, and the random distribution of the scattergram suggests assumptions for homogeneity of variance were met.

Significant main effects were seen on pain self-efficacy ($F_{2,203}$ = 12.219, $p<0.0005$), pain disability ($F_{2,208}$ = 5.274, $p<0.001$), distress ($F_{2,206}$ = 8.402, $p<0.0005$), anxiety ($F_{2,207}$ = 7.867, $p<0.005$) and depression ($F_{2,207}$ = 3.815, $p<0.05$). No significant main effects were seen in the measures of pain intensity and pain description. The significant main effects justified employing the *Bonferroni* post-hoc test to check for differences between measurement times. The mean differences are shown in Table 16.

Table 16. Mean differences for Bonferroni post-hoc tests

Variable	**Times 1 and 2 Mean difference**	**Times 1 and 3 Mean difference**	**Times 2 and 3 Mean difference**
Pain intensity	0.25	0.11	-0.1441
Pain description	-0.03	1.03	1.07
Distress	3.06 **	2.45 *	-0.61
Anxiety	0.88 *	1.61 **	0.72
Depression	1.02 *	1.76 **	0.74
Pain disability	6.95 **	6.03 *	-0.92
Pain self -efficacy	-5.39 **	-6.16 **	-0.77

*$p<0.005$, **$p<0.0005$

From the results in Table 16 it can be seen that pain measures did not change. Significant improvements can be seen on distress, anxiety, depression, pain disability and pain self-efficacy from Time 1 to Time 2. On all these variables, the significant improvement was maintained at one year follow-up. No significant differences were seen between Times 2 and 3. These findings suggest the pain management programme has the greatest effect on improving self-efficacy and reducing pain related disability.

These findings suggest the intervention of the PMP is making significant changes on a number of measures. Further the results suggest the PSEQ is clinically useful in discriminating change pre and post treatment.

SUMMARY

These results have found the PSEQ has excellent internal consistency. Test-retest reliability provided evidence that the PSEQ measures a stable construct. Factor analysis on all the data set found a 1 factor solution, but further analysis dividing the data into two cohorts found 1 and 2 factor solutions respectively.

Predictive validity was demonstrated by using high / low pain self efficacy as the independent variable in multi-variate analysis of variance. It was found that high / low pain self efficacy is able to distinguish chronic pain patients on mood, disability and pain intensity.

Disability was found to be most strongly correlated with pain self efficacy and multiple regression found pain self efficacy the strongest and most consistent predictor of pain related disability across the three measurement times.

Pre and post treatment analysis provided evidence to support using the PSEQ as an outcome measure in pain management programmes as it demonstrates clinical sensitivity.

Chapter 6

Discussion

The current study investigated the PSEQ and contributes to the literature evaluating reliability and validity. The present study also examined the relationship between self efficacy beliefs and disability over a one year period. The results indicated that disability was significantly related to depression, anxiety, distress, pain intensity and quality, and most pertinently, pain self efficacy. It was also found that self efficacy beliefs were predictive of pain related disability, not only at assessment but also at 3 and 12 months post treatment. This finding held even after controlling for the possible effects of pain intensity, depression, anxiety and other psychopathology.

Psychometric properties of the PSEQ

Internal reliability for the PSEQ was demonstrated using Chronbach's alpha at two measurement times and was found to be 0.904 and 0.934 thus providing support for good internal consistency. Previous studies have also reported Chronbach's alpha to be above 0.90 (Gibson and Strong 1996, Asghari and Nicholas 2001).

Further exploration of reliability using the test retest method over a two week period revealed a correlation of 0.950. An earlier study reported test retest reliability of 0.73, although this study used a 3 month period which may explain the difference (Nicholas 2005). The reliability analysis suggests the PSEQ has excellent internal consistency and measures a stable construct.

Preliminary exploration of the PSEQ's internal structure revealed a scree plot identifying 1 factor. Principal components analysis calculated on four years worth of assessment data and using an eigenvalue of 1, revealed 56% of the total variance accounted for. Of the 10 items, 9 loaded highly, with loadings of 0.69 or greater. Item 7 (Can cope without medication) showed a loading of 0.42. Further analysis sub-divided the data into two cohorts, the first comprised data from 2003 and cohort 2 from 2002, 2004 and 2005 added together.

It was noted that analysis from cohort 1 failed to replicate the 1 factor solution, with item 7 falling out of the first factor (loading 0.34) and loading on a second factor (loading 0.82). Analysis from cohort 2 confirmed the 1 factor solution, with item 7 again showing the lowest loading of 0.47.

The one-factor solution supported the previous findings of Nicholas (2005) who reported 58.6% of the total variance explained, with item 7 loading of 0.64. It could be argued that item 7 may be undermining the validity of the PSEQ, so further analysis was carried out omitting item 7. It was found that a further 4.8% of the variance was accounted for by omitting item 7 (60.8% total variance). Although Nicholas (2005) recognises the possible confounding effect of item 7 on the factor solution, he nevertheless argues it should be retained because of strong construct validity. Further research could assess how the PSEQ performs with item 7 omitted. The influence of item 7 will be further discussed below.

Support for the validity of the PSEQ was seen in the significant correlations (in expected directions) with measures of pain related disability and mood. The PSEQ showed clinical sensitivity in discriminating change post intervention and adds support for its construct validity (Murphy and Davidshofer 1988).

The validity of the PSEQ was further examined by splitting the data into high or low self efficacy based on a median value of 26. Multivariate analysis revealed significant differences between the high and low self efficacy groups across all measurement times for disability, anxiety and depression. It is worth noting that pain quality revealed no significant differences at any time based on high and low self efficacy, although pain intensity showed significant differences at assessment and 3 month follow up.

The findings suggest that PSEQ is able to discriminate patients' disability, pain and mood based on whether they fall into the high or low self efficacy group. It could be argued that self efficacy score can be considered a global representation of psychological functioning in chronic pain patients. Of course, this is not to say that high self efficacy for example causes elevated mood, low pain and low disability. Further work could explore the ability of the PSEQ to predict outcome.

Perhaps those patients with high self efficacy have less room for improvement and less likely to gain benefit from attending a pain management programme. Nicholas (2005) has argued that a cut off PSEQ score of 40 should be used to identify those patients unlikely to benefit from a pain management programme. Those patients with high self efficacy but possibly not gaining benefit from pain management intervention might be targeted with different therapeutic technologies. It would appear that reporting high self efficacy does not necessarily protect a patient from presenting in primary care due to pain suffering. It could be argued that patients with high self efficacy cope with chronic pain differently to those with low self efficacy.

Bandura (1994) suggests that those individuals with high self efficacy will persevere despite chronic pain, will have less distressing expectations and will view unpleasant symptoms more benignly. Although those patients with high self efficacy appear to be coping better based on the criteria from the current study's outcome measures, it cannot be inferred that their lives are less impacted by chronic pain. Other characteristics not measured by the current study may differentiate further the high and low self efficacy groups. Further research could investigate if any differences exist on demographic and socioeconomic variables. So for example, those with high self efficacy might be more likely to be working, taking less opiates and seek less healthcare.

One could argue that a patient presenting at pre-intervention with high pain self efficacy has less scope for improvement. In the author's clinical practice, patients with high self efficacy are often unaware that despite chronic pain, they are functioning at a reasonable level. In this case an intervention focused on challenging unrealistic expectations might prove useful in helping the patient adapt to their chronic pain. If high pain self efficacy patients do not maintain improvement post pain management intervention, then treating this group with a different intervention might be more appropriate.

These findings offer support for using the PSEQ as a screening tool to identify those patients most likely to benefit from pain management programme intervention.

Self efficacy and relations with other variables.

All independent variables were found to relate significantly with disability at time 1, although coefficients ranged from 0.272 for pain quality to -0.581 for pain self efficacy. Multiple regression analyses were performed for each of the three measurement times and on each occasion, pain self efficacy was found to be the strongest predictor of disability and explained 36%, 45% and 55% of the variance respectively. Although pain intensity was found to be the second strongest predictor, it actually added little variance to each model.

Causality cannot be inferred from this study. It may be possible that reciprocal relationships exist between the pain self-efficacy and disability. Whilst it is possible that changes in self efficacy led to reductions in disability, the converse is also possible, that is changes in disability led to changes in self efficacy.

Consistent with earlier studies, there is a significant relationship between self efficacy and disability (Buckelew, Parker, Keefe et al 1994 Lackner, Carosella and Feuerstein 1996). In the present study, after controlling for the effects of anxiety, depression, pain intensity and distress, the measure of pain self efficacy was an independent and significant predictor of disability longitudinally: therefore, the lower the self efficacy, the higher the level of disability. Asghari and Nicholas (2001) found higher pain self efficacy beliefs to be predictive of reduced avoidance behaviours.

There was no effect of gender on self efficacy at any of the three measurement times and is consistent with the findings of Strong, Ashton and Chant (1992) and Beckham, Rice and Talton (1994). Similarly, no relationship was found between age and self efficacy at any measurement time and agrees with previous findings of Strong, Ashton and Chant (1992) and Kotler-Cope (1993).

The stepwise regression analyses showed that pain self efficacy explained a considerably larger proportion of the variance in pain disability scores after controlling for all other variables than did the other variables. This finding suggests that pain self efficacy was the most important predictor of disability, which is consistent with the results reported by Ayre and Tyson (2001).

It could be argued that the finding is explained by the strong influence of enactive mastery experiences upon self efficacy beliefs (Bandura 1977, 1994). This position forms a strong link between the confidence an individual has to perform behaviours required to complete an activity and what the individual actually does. An alternative explanation to the strong association between self efficacy and disability has been suggested by Denison, Asenlof and Lindberg (2004), who used the PDI and rather than the PSEQ, employed the Self Efficacy Scale (SES) (Altmaier, Russell, Kao et al 1993) to predict disability in a primary health care sample. Denison, Asenlof and Lindberg (2004) proposed the possibility of overlapping content in the PDI and SES. Although the PDI requires the patient to rate the degree to which activities are hindered by pain and the SES requires patients to rate their confidence in performing activities despite pain, the participants might not have made the distinction and so the two constructs may not be entirely independent.

The current findings raise the possibility that chronic pain patients may become disabled in part due to low self efficacy, supporting previous work by Arnstein, Caudill, Mandle et al (1999). Doubting one's own ability (low self efficacy) may contribute to disability. This suggestion is consistent with the theoretical conceptualisations suggested by Bandura (1989). It also adds to the chronic pain / disability literature. These findings corroborate the findings of Jensen, Turner and Romano (1994) who reported patients believing they are disabled by pain, are indeed more disabled. Similarly, the research by Kores, Murphy, Rosenthal et al (1990) and Estlander, Vanharanta, Moneta et al (1994) is supported suggesting higher levels of self efficacy are associated with lower levels of disability. The longitudinal design employed in the current study gives support to the cause-effect relationship between pain self efficacy and disability. The findings are consistent with previous research that suggests self efficacy beliefs are predictive of physical disability (e.g. Arnstein, Caudill, Mandle et al 1999 Buckelew, Parker, Keefe et al 1994 Lackner, Carosella and Feuerstein 1996 and Asghari and Nicholas 2001).

Goal Attainment scores measured at three and twelve month post treatment were found to be associated with all other variables in predicted directions. A positive relationship was seen between the GAS scores and pain self efficacy and, inverse relationships were observed for all other variables.

It could be argued that achievement on goal attainment would improve self-efficacy through skill mastery (Bandura 1994).

The finding that correlations between the PSEQ and pain experience and intensity were relatively low suggests that while pain experience is reflected in self efficacy beliefs (in an inverse relationship) other factors as originally argued by Bandura (1977) contribute to self efficacy beliefs. Findings from the current study suggest treatment did not change pain but improved self efficacy and supports Bandura's position and is consistent with previous research (Nicholas, Wilson and Goyen 1992, Williams, Richardson, Nicholson et al 1993, 1996).

In predicting pain related disability, three different measurement times were used; pre treatment, three month post treatment and twelve month post treatment. In the first two, depression made a small but significant contribution to the variance. In the third cohort depression fell out of the model. The role of depression was explored by Arnstein, Caudill, Mandle et al (1999) who reported that pain related disability mediated the relationship between pain intensity and depression. It is worth noting that only 4% of depression variance was explained by pain related disability, whereas self efficacy contributed 6% to the total variance. In their study Arnstein, Caudill, Mandle et al (1999) used the *Chronic Pain Self Efficacy Scale* (Anderson, Dowds, Pelletz et al 1995) rather than the PSEQ.

There is some evidence that patients with high pain related disability have more misconceptions about pain and appropriate healthcare. For example Goubert, Crombez and Bourdeaudhuij (2004) reported those patients with severe low back pain related disability were more likely to believe that the individual can do little to ease their situation and more strongly believed that everyone with back pain should have x ray or imaging test.

Chong, Cogan, Randolph et al (2001) reported higher SE to be associated with lower pain ratings in chronic pain patients. In the current study, the correlation between pain intensity and disability was 0.353 and although significant at $p<.0001$, much less than reported by Arnstein, Caudill, Mandle et al (1999) who found a correlation of 0.58.

Pain intensity emerged as a consistently significant predictor of disability at all measurement times, and is consistent with results reported by Van der Hout, Vlayen, Heuts et al (2001) who used the McGill Pain Questionnaire to assess intensity and pain quality.

It is worth noting that pain duration did not correlate with any of the outcome measures, although chronicity ranged from 1 year to 55 years. These findings suggest that pain duration does not influence adjustment to chronic pain and is consistent with results from Denison, Asenlof and Lindberg (2004). Common sense assumptions would possibly argue that pain duration would affect adjustment to chronic pain. One argument could be based on pain duration predicting acceptance and would view the patient as shifting away from a pain focus to the non-pain aspects of life (Goubert, Crombez and Bourdeaudhuij 2004). Further support for this adaptation model comes from Weiner, Rudy, Young-Sin et al (2004) who investigated physical disability in a sample of older adults with chronic low back pain and reported an inverse relationship between pain duration and disability. Physical disability was assessed using a lifting task and gait speed. The finding that shorter the chronicity, the greater the disability contradicts the common sense assumption that duration automatically augments disability. An alternative argument could view pain duration as contributing to increased distress and disability over time. Results from the current study support the position that chronicity of pain does not influence adaptation. Pain duration did not influence changes in pain intensity, pain description, pain related disability, pain self efficacy, distress, anxiety or depression.

Pain Management Programme Evaluation

The pain management programme evaluated in the current study does not make pain relief a target of intervention. Part of the programme's philosophy is showing the patient that improvements can be made despite still being in pain. Making progress not contingent on pain reduction provides the patient with the opportunity to envisage further progress in the face of pain. Indeed as argued by Peat (2000) "The primary aim of pain management programmes is to reduce disability and distress" (p.367).

The pain management intervention in this study was found to improve on all measures except pain. This finding was in the expected direction, particularly as pain reduction is not a focus of the intervention and offers support for the proposition that improvements are not contingent on pain reduction. The medical model for these patients has failed to provide adequate relief or even cure their pain, so demonstrating that improvements are possible despite pain supports the biopsychosocial model of chronic pain. Significant improvements were noted at 3 month follow up on distress, anxiety, depression, disability and self efficacy which were all maintained 9 months later (1year follow up), although the improvements in depression and disability did not reach statistical significance. It would appear that self efficacy and anxiety are most significantly changed on the programme. It could be argued that pain self efficacy and pain related anxiety are closely linked, and improvements on one would be reflected in improvements on the other, as indeed was found in this study.

Table 16 shows the analyses testing pre and post treatment effects. Of all the measures, only pain intensity and quality did not significantly change. Significant changes in distress, anxiety and pain self efficacy noted at 3 month follow up were maintained at 1 year follow up. One could argue that low mood and self efficacy are sequelae of pain intensity, but these findings do not offer support for that proposition. The results suggest that improvements in mood, disability and pain self efficacy are independent of changes in pain. This finding is applied therapeutically on the pain management programme. Changes in function, such as sitting or walking tolerances are often achieved with no reduction in pain. In fact, patients will often complain of increased pain. Members of the therapy team will explain this exacerbation of pain by suggesting the patient is using muscles that may have atrophied due to disuse and not been tested in many months if not years. This "training pain" is expected, only temporary and not causing harm. Strategies are given to help patients manage these acute episodes of pain. The patient can learn that improvements in function and mood are not contingent on pain relief. This can be a crucial turning point for the patient, who can make cognitive shifts from "*I can't because of the pain*" to "*perhaps I can despite the pain*". At the assessment visit patients are clearly told the intervention will not cure or even reduce their pain. Of course, at that stage some patients will decline an admission if their only criterion for improvement is pain relief. Some patients struggle to accept that pain will not ease.

Clinical reasoning is used to identify those patients who might benefit from out-patient preparatory work for deferred admission at a later date.

A key strategy of the pain management programme is encouraging patients to test their physical boundaries. Erroneous or maladaptive beliefs are often expressed particularly concerned with function. Behavioural experiments are used each day to challenge maladaptive beliefs. It could be argued that the positive outcomes are used as evidence for improvement and lead to enhanced self efficacy. This evidence for improved function may also be contributing to the significant reductions in anxiety. Vlaeyen, de Jong, Geilen et al (2001) used graded exposure to activities of which the patients were fearful, and went on to report reductions in fear avoidance following the intervention. Although Vlaeyen and colleagues did not measure self efficacy, it is reasonable to suggest that self efficacy would have been improved. Similarly, if fear avoidance beliefs had been measured in the current study, it is reasonable to suggest these beliefs would have reduced in strength.

Regression analyses revealed that pain self efficacy contributed to the prediction of pain related disability beyond the variance accounted for by pain intensity and quality. These findings suggest that treatment interventions focused on improving self efficacy might lead to meaningful reductions in the level of disability. The findings also suggest that pain management interventions should develop specific techniques and strategies for enhancing self efficacy.

Implications for clinical practice

Bandura (1994) suggests that self efficacy beliefs can be enhanced through (a) skill mastery, (b) sharing vicarious experiences, (c) verbal persuasion and (d) providing information about the individual's physiological and affective state. It could be strongly argued that the pain management programme studied in the current research addresses each of these domains. The current study provides support for the idea originally proposed by Bandura (1989) who argued it is useful to conceptualise self efficacy as a reflection of a 'resilient self-belief system' in the face of challenges. One could argue the PSEQ specifies the nature of those challenges to be faced (i.e. pain) and so provides more clinically useful information than simply asking an individual about their confidence in performing non-specific activities. Given the contribution that self efficacy probably makes to chronic pain related disability, the enhancement of self efficacy beliefs should be targeted within any cognitive behavioural intervention.

The significant improvements seen in self efficacy support Bandura's (1994) assertion that self efficacy beliefs are not fixed but amenable to change in the light of experience. In the clinical context, the current findings are in line with Bandura's prediction that improving self efficacy will encourage the patient to engage in activities previously avoided.

The multi-disciplinary team work closely with the patient to assess the impact of the pain upon their lives. For example, ability to perform activities of daily living might be compromised. During the three week admission, patients are encouraged to test the veracity of their beliefs. Within the Occupational Therapy department a fully fitted kitchen and bathroom enable the patients to test their abilities. Techniques for improved function can be practiced in a safe and supportive environment. Similarly, the pain management programme adopts a "hands off" model of physiotherapy where physiotherapists do not use manipulation or mobilisation. Rather the approach is to watch and guide the patient. Thus the patient can attribute improvement to their own efforts and enhance self efficacy.

The Programme uses a combination of group and individual sessions, with modelling an important component in each. In the former, patients will gain confidence from watching fellow patients successfully complete a task. Similarly, in the latter sessions, members of the therapy team will demonstrate correct posture and techniques for completing a particular task.

A core component of the programme is challenging a patient's maladaptive beliefs. Anecdotal evidence from the author's clinical experience may help illustrate this approach. A 52 year old male with chronic low back pain displayed high disability, was dependent on the support of his family for activities of daily living and spending much of the day sitting in a recliner chair watching television.

When questioned by this author about his health related beliefs, the patient explained that he believed his spine to be "crumbling, just like a biscuit" as he held out his hand and rubbed his fingers together to simulate crumbling a biscuit. The following formulation was postulated; the patient's erroneous beliefs about anatomy led to the need to "protect" his spine from movement and further degeneration, and this guarding behaviour or fear avoidance contributed to his disability and attenuated his pain self efficacy. Thus a cycle was established of low self efficacy reinforcing high disability status. A physiotherapy colleague used a model of the spine to explain its two primary functions of support and protection of the central nervous system, emphasising its strength and structure. The current author encouraged the patient to set small achievable goals, with the hope that these achievements would enhance self efficacy. Examples of these goals were standing unaided for 30 seconds and sit to stand repetitions. Within 4 days the patient was standing for 5 minutes unaided and walking 10 metres five times a day. The occupational therapist was also successful in getting the patient to prepare a simple meal, a task he had not attempted for many years. It is worth noting how these maladaptive health beliefs can develop. The use by health professionals of vague and non-specific diagnostic labels such as "degenerative disc disease", together with poor advice will encourage disability (Loeser and Sullivan (1995). It is highly predictable that given such information, a patient will engage in disabling behaviours in order to protect his spine from further "degeneration".

The current study provides evidence to support the PSEQ being used as an outcome measure. Nicholas (2005) also suggests using the PSEQ as a screening instrument, providing an indication of receptivity to an intervention such as a pain management programme that did not offer pain relief. Nicholas (2005) suggests a very low score (e.g. < 17 from Coughlan, Ridout, Williams et al 1995) could be interpreted as the patient believing in order to become more active, their pain needs to be relieved. If this was the case, one could argue the patient would not be receptive to the self management principles advocated on a pain management programme. Preparatory work would need to be undertaken in order to encourage the patient to modify their cognitions.

Alternatively, Nicholas (2005) uses a high PSEQ score of over 40 (from Williams, Richardson, Nicholas et al 1996 Cohen, Nicholas and Blanch 2000) as a cut-off for patients not needing a pain management programme. Perhaps further examination of the patient's reasons for presenting is needed.

Bandura's (1977) self efficacy theory would predict that patients attending a pain management programme making behavioural changes but not significantly improving their pain self efficacy would be at risk of relapse or drop-out. This view is supported by the findings of Coughlan, Ridout, Williams et al (1995). Nicholas (2005) suggests using the PSEQ to identify those patients 'at risk' post pain management treatment or those individuals likely to relapse. If those vulnerable to relapse could be identified, then further help could be offered with the aim to prevent attenuation of gains. Pain management programme attrition and relapse are important issues demanding attention. There is evidence that when self efficacy beliefs are not a focus of intervention and not enhanced following a pain management programme, the attrition rate from programme follow up will increase (Coughlan, Ridout, Willams et al 1995).

As described earlier, as part of the pain management programme studied in this current research, two follow up sessions are offered at 3 and 12 months post treatment. These follow up sessions start with patient groups of around 8 individuals attending a group session facilitated by an experienced member of the therapy team. This setting enables the patients to individually provide feedback about progress or set backs, and to reflect on successes or disappointments. Patients are then seen individually by a member of the therapy team to review previous goals and set new ones.

The results from the current study argue for pain clinicians to focus on pain related beliefs rather than pain intensity in chronic pain patients. There may be a danger in overlooking important aspects of disability by relying on overextended somatic assessment and subsequently employing ineffective treatment strategies. Although medics are obliged to focus on somatic complaints, it might be useful to direct the chronic pain patient's career away from the medical to the bio-psychosocial model.

Methodological Issues

The reliance on self report measures might be considered a weakness, but the variables in this study are only accessible through self report (eg, pain, beliefs and mood). It could be argued that the changes observed on the outcome measures might have occurred through random variation, rather than as a result of the intervention. However as Woby, Watson Roach et al (2004) argue, this seems unlikely given the duration of pain, although their sample comprised only low back pain patients. Another limitation is an inevitable feature of longitudinal research and concerns the possible shared variance between variables measured over time, which has been at least partially addressed by analysing the results with multi-variate analysis of variance. The same patients participated on three occasions of data collection and the strength of relationships among the variables may have been inflated. Further research and analyses would probably benefit from using cross-lagged design or structural equation modelling which permits better testing of cause-effect relationships (Arnstein, Caudill, Mandle et al 1999).

The pre/post evaluation design prevents attributing the effects seen to the intervention and only an association can be made. Although significant changes were seen at three month and maintained at one year, it cannot be concluded that these were due to the intervention. Empirical conclusions may be due to non specific reasons for change. Bouchet, Guillemin and Briancon (1996) and Turner, Deyo, Loeser et al (1994) warn of attributing change specifically to the content of the intervention. Random measurement error and variation in the patient's condition can contribute to making erroneous assumptions about treatment efficacy (Peat 2000).

The results from the current study found self efficacy to be the strongest predictor of disability but Dension, Asenlof and Lindberg (2004) warns that the term 'predictor' is used in its statistical sense only and causal interpretation of the results is not appropriate, though multiple regression has addressed this concern. In this study there were no patients with high pain self efficacy and high pain disability but these patients may need special consideration.

The rate of patient attrition can undermine conclusions drawn from the current study as an attrition rate greater than 20% threatens the validity of pain management evaluation (Peat 2000). The attrition rate or patient drop out from the first measurement time to the third occasion was just over 50% and could have confounded the results. It could be argued that the findings do not represent the characteristics in the original sample at first measurement. The study also suffers from limitations associated with path analyses, which only permits the testing of unidirectional relationships. The suffering of chronic pain is a complex phenomenon comprising of many factors and the relationships between these factors are probably not unidirectional. For example, a patient with high self efficacy would probably more easily return to work or occupation and be less disabled. Similarly, a less disabled patient returning to work would probably enhance their self efficacy.

Expressing treatment outcome in sample averages can provide a general impression of change but may obscure changes in clinical sub-groups. Feinstein (1996) highlights this concern and argues "statistical reductionism" hides a basic clinical reality that patients vary in their response to treatment. One approach to this concern has been the use of clinical sub-groups. Multidimensional methods of classifying chronic pain patients into clinical sub-groups have been validated (Turk and Rudy 1992, Von Korff, Ormel, Keefe et al 1992). However, none have demonstrated real predictive value in determining those patients most likely to gain from pain management interventions (Peat 2000). The use of *reliable change indices* have been suggested by Speer (1992) and, Hageman and Arindell (1993) who argue for distinctions to be made between statistical and clinical significant differences. There is a need to specify the magnitude of change that is detectable and important (Guyatt, Juniper, Walter et al 1998, Slater, Doctor, Pruitt et al 1997).

No waiting list control group was used for this design which prevents inferring causality of treatment effects. Future research could use a waiting list condition as the control group where measures are first administered at the initial referral for assessment onto the pain management programme.

The PMP intervention is not rigidly standardised. The skills of staff, patient and staff interaction, group dynamics, and patient compliance all undermine attempts to generalise from the research findings.

The findings from the current study should be interpreted with caution when making generalities. The sample and results only represent referral patterns to a specialist orthopaedic hospital. Many chronic pain patients are treated in the community and may present with different psychological characteristics. It is reasonable to assume that chronic pain patients referred to a specialist orthopaedic / rehabilitation hospital are probably more disabled than those patients treated in the community. Patients who are better able to cope with their pain are more likely to remain in primary health care (Turk and Rudy 1990). Much of the chronic pain related disability literature is drawn from pain management program samples (Adams and Williams 2003 Crombez, Vlaeyen, Heuts, et al 1999) where patients are highly selected. Further research could test the self efficacy / disability relationship in community based samples.

There is evidence that patients with chronic pain attending tertiary centres, when compared with patients treated in community settings, tend to report greater dysfunction and more likely to attribute their pain to a traumatic injury (Crook, Tunks and Rideout 1986). A second sampling effect may have occurred because the sample comprised patients with musculoskeletal pain and so the findings cannot be generalised to other chronic pain disorders. Geisser and Roth (1998) for example, describe patients with myofascial pain as a distinct group, particularly concerned with gaining a diagnosis.

Future Research

The current study found an inverse relationship between pain self efficacy and pain related disability. It might also be expected that pain self efficacy would also be inversely related to pain related fear. This relationship has been reported by Watson, Booker and Main (1997) and Ayer and Tyson (2001). It is interesting to note in the Ayer and Tyson (2001) study that pain self efficacy accounted for a greater proportion of the variance in disability scores (in patients with chronic low back pain) than fear avoidance beliefs.

Further work could explore the pain self efficacy and fear avoidance relationship. It could be argued whether a chronic low back pain sufferer performs a particular task is more dependent on how confident they are rather than degree of fear associated with performing the task.

The factor analysis involved using two cohorts with each finding different factor solutions. Item 7 had the lowest loading on the first 1 factor solution and was the only item which loaded on the second factor solution. The response to item 7 and its relatively independent contribution to the factor structure provides sufficient justification for future research evaluating the PSEQ with Item 7 omitted.

Further research could use the PSEQ to identify those patients who are most likely to make functional gains. Significant improvement on a self report measure may not be reflected in functional status. So combining self report with objective measures would help support the validity of the PSEQ when used to predict outcomes. Nicholas (2005) suggests the PSEQ could be used to predict the likelihood of returning to work post pain management intervention. Cohen, Nicholas and Blanch (2000) and Adams and Williams (2003) reported a PSEQ post treatment score of 40 for patients who returned to work. Similarly, this cut-off score of 40 has also been reported to predict those patients who maintained their treatment gains at 6 and 12 month follow ups (Williams, Richardson, Nicholas et al 1993, 1996). Nicholas (2005) suggests a post treatment score of 40 will indicate a threshold has been reached where maintenance of gains or return to work was reasonably likely. Coughlan, Ridout, Williams et al (1995) reported a score of around 30 leaves the outcome less certain and less likely to be predictive of return to work or maintenance of treatment gains. Future studies could focus on the relevance of particular PSEQ scores.

Findings from the current study finally support research into enhancing and maintaining self efficacy. Investigating the factors that influence self efficacy status will help with the design of future interventions. The current study has provided evidence that enhanced self efficacy will inversely relate to a reduction in disability, but this effect suffers from time related attenuation. Developing specific technologies to help maintain improved self efficacy may help prevent relapse and possible worsening of disability status.

Summary

In summary, this study provides evidence that pain self-efficacy is an important variable in understanding pain related disability. It can be argued that interventions aimed at enhancing self-efficacy will result in reduced disability.

The findings suggest that encouraging patterns of thought and action associated with improving self efficacy will improve function. These results support the conclusion that enhanced self efficacy is an important aspect of psychological interventions to treat chronic pain patients.

Chapter 7.

Section C. Case Study of Professional Practice

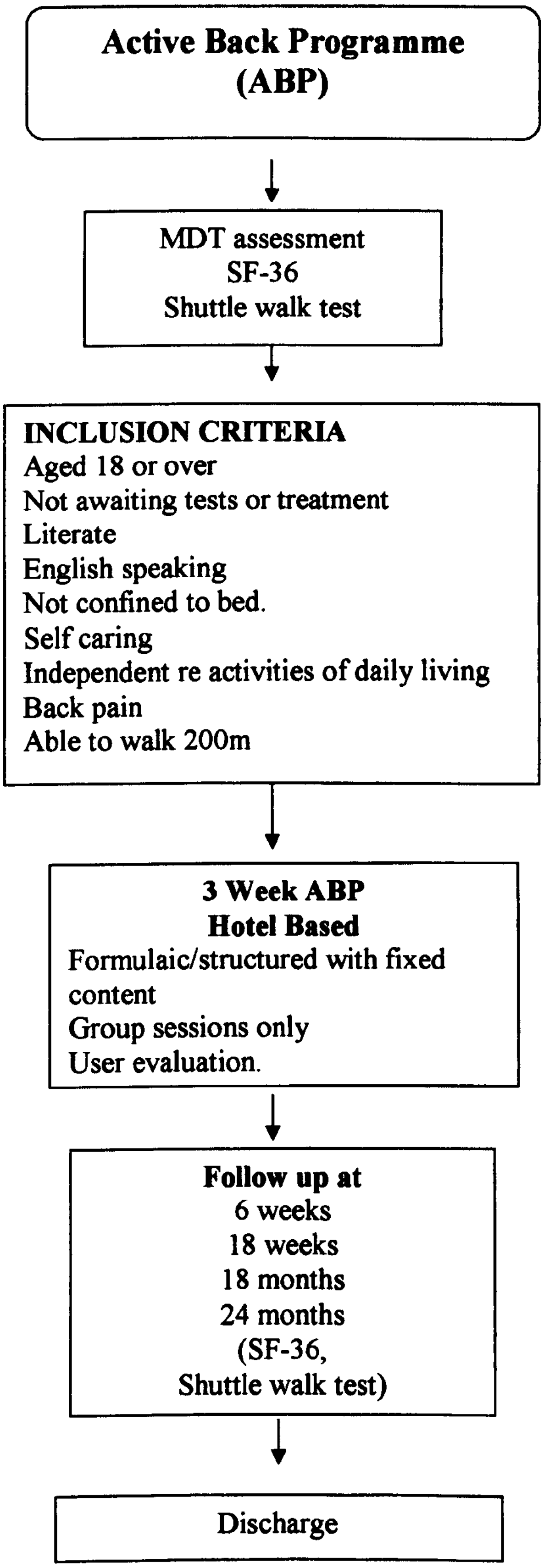
Consultancy and Service Delivery on the Active Back Programme

Introduction

The Active Back Programme (ABP) is a three week pain management programme. The ABP is hospital based with patients staying in a local hotel. The Royal National Orthopaedic Hospital offers two types of pain management intervention; a Pain Management Programme for highly disabled and complex patients, and the ABP which is aimed at those less disabled chronic back pain sufferers. Many of the patients on the ABP are employed or in full time study and use the programme to augment their occupational status. ABP patients are independent regarding activities of daily living. The sessions combine didactic educational and discussion groups. Only one of the sessions is on a one-to-one basis to enable individual feedback. A timetable of sessions is provided in the Appendix. The ABP process is summarised in Figure 15.

The ABP is based on a cognitive behavioural therapy model of chronic pain management involving multi-disciplinary teamwork and homework. It is expected that patients acquire problem solving skills and improved coping strategies through behavioural procedures, psycho-educational sessions and cognitive interventions.

Figure 15. Process Map of the Active Back Programme as used for Section C



Assessment for the ABP

Tertiary or primary care referrals are made to a Consultant Physician who assesses whether the patient should be invited to the programme assessment. Patients are then assessed by members of the ABP therapy team who decide the patient's suitability for acceptance onto the programme. The assessment procedure is also an opportunity for patients to become familiar with the aims and structure of the programme, and so should be better informed whether they wish to be admitted onto the ABP. A rationale for group therapy is presented that describes how training and development of coping skills can be used to manage chronic pain more effectively.

At the assessment patients are given information about the programme and outcome measures taken include a quality of life instrument and shuttle walk test. Patients must be functionally independent and able to self-care. The patients are taken on a tour of the hospital's facilities which indicates how the patients will cope with walking to and from the different departments if they were to come on the programme. Patients need to have a reasonable command of English. Adequate literacy skills are also needed as written materials are used to consolidate knowledge, encourage reflection and are a basis for homework. Patients are expected to have no ongoing medical investigations or surgery planned. The average group number is six and is always female dominant reflecting referral patterns to other pain services throughout the hospital.

Some patients will decline a place on the programme for many reasons. A patient may be uncomfortable discussing personal issues in a group setting. Some patients will be fixed on surgical options, pain relief or cure and it is made clear that the programme is about management of pain rather than relief. Some patients are unhappy about leaving their family, or may have child care difficulties or other domestic commitments. Patients who are extremely angry and hostile are not appropriate for group therapy (Keefe, Beaupre and Gil 1996), as are severely depressed patients. Concerns are also raised about patients with fear of social situations.

Programme Outline

The ABP is a group based pain management programme underpinned by cognitive behavioural principles (Main and Spanswick 2000). The ABP therapy team comprises physiotherapists, occupational therapists, occupational therapy assistants and health psychologist. The groups combine educative, guided mastery and discussion. The interdisciplinary input is delivered Monday to Friday from 9.00am to 4.30pm. The patients are expected to complete evening based written tasks during the week. Evening homework is an important component of the ABP and encourages patients to reflect on earlier therapy sessions and consolidate their learning. Thorn (2004) argues that homework encourages the patient to be collaborative and thus engage in the therapeutic process. Weekend goals are set for the two weekends during the programme. Discharge goals are set and reviewed at the follow sessions. Patient progress is reviewed on four half day follow up sessions at 6 and 18 weeks, and 18 and 24 months. Patients are asked to review the programme each week using evaluation forms which are discussed below.

Patients are asked to complete the *SF-36* (Ware, Snow, Kosinski et al 1993) a health status questionnaire, and undertake a timed shuttle walk task. The current author is not involved in either of these assessments or access to the data, although the current author is planning to introduce *Goal Attainment Scaling* (Kiresuk and Sherman 1968) as part of service development, and is discussed later in the chapter.

The ABP aims to keep patients at work or enhance their chances of returning to work or study. In this situation "work" or "occupation" can also mean housework. Self-management strategies are developed through graded exposure to exercise, stretch, pacing, relaxation, cognitive challenges and acceptance of pain. On the first day folders are provided to each patient and throughout the programme literature is supplied to form a learning resource.

Each week the therapy team meets to discuss progress of each patient and raise any concerns. It is interesting at these multi-disciplinary team meeting discussions how patients will present differently to members of the therapy team.

These meetings are particularly useful for identifying those patients who might be struggling to engage, gaining little from the programme or being disruptive to group cohesion. If a particular concern is identified, a member of the team will confidentially discuss the issue with the patient and endeavour to support the patient and find suitable resolution. In extreme circumstances, a patient may be asked to leave the programme if for example, the cohesion of the rest of the group is threatened, or it is clear the programme will not meet their expectations or needs.

Theoretical context to Group Therapy

Group based therapy for chronic pain patients began to flourish during the 1970s (Sternbach 1974, Cairns, Thomas, Mooney et al 1976, Swanson, Maruta, and Swenson 1979). During the last thirty years, group therapy has emerged as one of the major forms of psychological treatment for chronic pain. Controlled research studies demonstrating the efficacy of group therapy interventions for low back pain have been reported by Turner and Clancy (1988) and Nicholas, Wilson and Goyen (1991).

Smith (2001) reviewed the literature on group development and distinguished between two different approaches; some models can be viewed as linear or stage, while the other views them as "phases" that groups may pass through and which might occur at different times. Seminal work by Lewin (1947) who first described *group dynamics*, proposed a three stage process for group development. *Unfreezing* involves overcoming inertia and challenging existing cognitions; *change* which is characterised by confusion and transition. Although the individual is aware that old cognitions are being challenged, there is also uncertainty about embracing alternatives. The third stage is freezing, seen when new thinking is consolidated and the individual returns to feeling comfortable.

Tuckman (1965) reviewed over fifty studies of group development and synthesised their commonalities into one single theory which describes four linear stages: Forming – group members get to know one another and the objectives for the Group where poor listening and un-involvement may be observed; Storming describes when group members may engage in confrontations and struggle to achieve status in the group; Norming sees the group establish implicit or explicit rules of interaction and working boundaries. Roles within the group are developed and new ideas are tested; Performing is the fourth stage and characterised by improved trust between members and underpinned by a sense of loyalty. Individuals work well together showing support and understanding to their fellow group members. A fifth stage, Adjourning was added in 1977 (Tuckman and Jensen 1977) after a further review of more recent literature. This stage is about completion and disengagement, and group members will be proud of their achievements. Tuckman' s (1965) original work has been influential and led to later models following sequential patterns (Hare 1976, Lacoursiere 1980, McGrath 1984)

The delivery of group sessions draws heavily from the work of Covi and co-workers (Covi, Roth and Lipman 1982 Covi and Lipman 1987), who demonstrated the effectiveness of curriculum-based group therapy with outpatients. Covi, Roth and Lipman (1982) emphasise the need for each session to build on the previous one. A good understanding of the previous session will help understanding of subsequent sessions. The author's service delivery comprises seven sessions and common themes run through each of the sessions, so for example, maladaptive beliefs or unrealistic expectations will not only feature in the "Managing Mood" session but also knowledge will be consolidated by referring back to previously described constructs. This service delivery will be described in detail below.

Pain occurs in the social context and so psychologists have developed group based technologies for helping patients cope with their pain. Keefe, Beaupre and Gil (1996) describe three advantages to group therapy approaches. First, patients are exposed to others in pain and learn they are not alone in suffering. Second, group therapy can enable patients to gain greater understanding of their pain and how behaviours, thoughts and feelings can influence pain. Finally, group therapy can provide a safe environment to develop and practice new coping skills. Thorn (2004) believes the group helps to legitimise a pain patient's problems and offers emotional support from others with shared concerns.

Keefe, Beaupre and Gil (1996) have described three types of group therapy used in the management of chronic pain: behaviour change groups, patient education groups and social support groups. Behaviour change groups use instruction and practice to help patients acquire and maintain a new set of coping behaviours to improve day to day functioning. The format is structured and emphasises instruction, rehearsal and practice of pain coping skills. Patient education groups work on the premise that information can lead to improved knowledge and better adjustment to chronic pain. The third type of group provides social support and based on the idea that many patients feel isolated and alone in coping with their pain and may benefit from the support and encouragement of others in the same situation. These groups are much less structured and more time is devoted to discussion of patients' experiences of coping with pain. The ABP adheres to this model as described by Keefe, Beaupre and Gil (1996), who describe the three major goals of group therapy to be behaviour change, education and social support.

Group interaction not only serves an instructional function, but also a supportive function (Keefe, Beaupre and Gil 1996). For example, when trying to explain the concept of automatic thoughts, a patient can more readily identify the automatic thoughts of a fellow group member. Once a patient understands the automatic thoughts of another group member, they can more easily identify such thinking in their own situation. Vicarious learning can occur from the example of others in the group. Keefe, Beaupre and Gil (1996) argue the group serves other important functions. Some patients will feel isolated and misunderstood, but the group setting allows for disclosure of thoughts and feelings in a safe and empathic environment. This public disclosure helps to validate their suffering and legitimises their pain problem. A further benefit of the group occurs when a fellow patient confronts another, pointing out a cognitive error or maladaptive behaviour. The confrontation can be easier to accept from a fellow patient, whose credibility may be considered stronger than in a member of staff.

The efficacy for group based CBT for chronic pain patients has been demonstrated by Keefe, Beaupre and Gil (1996), who pointed out this is the standard approach in inpatient pain management programmes. There are also economic considerations when arguing for group versus individual pain management interventions.

The ABP is a group based cognitive behavioural intervention which now appears to be the treatment of choice for chronic pain patients (Main and Spanswick 2000, Thorn 2004).

Consultancy to the ABP – Service Delivery

The ABP has run for over fifteen years with the focus on functional restoration and improved physical fitness. There was no formal psychology input and the therapy team comprised staff from physiotherapy, occupational therapy and nursing. The programme at that time was more formulaic with less time for discussion and reflection. The patients were expressing concerns and raising issues that existing staff felt unable to address. This led to the author being approached and asked to consider contributing to the programme. The author was given freedom to decide on the number of sessions and their content, and consideration was given to what was considered to be some of the core elements of chronic pain suffering (Main and Spanswick 2000). These core elements were expanded into one hour group therapy sessions (*Learning to Change, Understanding Pain, Managing Stress, Managing Mood, Assertiveness, Family and Friends, Maintenance Strategies*) and are described below.

The author is not directly involved in the usual formal assessment procedure and so the first contact with the patients occurs at the first session of the whole programme and involves all the therapy team meeting the patients. This welcome session aims to put the patients at ease. This will be the first time the patients have met as a group and may feel apprehensive about the programme and being away from home. Each member of the therapy team will introduce themselves and provide an outline of their contribution to the programme. It is important to establish boundaries and ground rules at the first session. The need to be sensitive and respectful to the beliefs of others is emphasised.

In the author's experience, anecdotal evidence suggests that some patients will be curious or even suspicious as to why a psychologist contributes to their programme. It is not uncommon for some patients to believe the role is to determine if their pain is "real" or to think "I am not mad so I don't need to see the psychologist". It is explained that as a chronic pain specialist, the author is interested in the sequelae of pain and the role of behaviour on pain related disability. Unfortunately, experience indicates that despite offering reassurance, a few patients will cling on to suspicion and struggle to engage in the sessions delivered by the author. These sessions are structured and possibly more didactic in nature than seen in out-patient settings (Wright, Thase, Beck et al 1993). There is a need for broad relevance, reflecting the diverse demographics of the patients. Apart from gender and low back pain, the patients represent a broad spectrum of circumstances. A particular challenge of group based therapy is making the material relevant to the differing social economic status of each patient. The next section describes each of the sessions.

Description of Service Delivery

Session 1. *Learning to Change*

The first session developed as a result of the evaluation exercise to be discussed below. Findings from the evaluation together with anecdotal evidence suggested that some patients struggled to accept the changes expected from attending the programme. The medical model encourages patients to be passive recipients of treatment, so it is not surprising some patients struggle to engage in the pain management process. The first session was designed to encourage patients to recognise the need to change through learning and draws on the Stages of Change model of behaviour change (DiClemente and Vilicer 1997). The session will start with patients asked what they wish to change. The most obvious reply is their pain intensity, believing progress is contingent on reduction of pain, but the message that pain reduction may not be possible is reiterated. Instead, patients are asked to consider what could change to provide a better quality of life. Patients are asked to reflect on how easy change has been in the past; were they successful and if not, then why not? What were the reasons why change was difficult or not maintained?

Habitual behaviours are discussed and patients are asked to describe habitual behaviours that may help or hinder coping with their pain.

The Stages of Change model is also useful to help patients examine the cost / benefit analyses of a particular behaviour change. Reasons to change are discussed and likely outcomes for both changing or not, are explored. Patients are asked to consider viewing their attendance on the ABP as "health investment" and identifying the costs and benefits for engaging in the process.

A model of change is presented, emphasising two key factors: *importance* ("why should I change"?) and the personal values attached to changing, and their *confidence* ("can I manage to do it"?). Readiness to change is influenced by importance and confidence. The role of *resistance* is also discussed in the context of using such examples as denial, arguing, putting up objectives or reasons not to change. Patients are asked to consider how individuals learn and different approaches are presented such as experiential or vicarious learning.

The author believes the greatest challenge for the pain management specialist is encouraging the patient to become an active agent of change and to take responsibility for their improvement. A passive stance is not appropriate in pain management and will act as a barrier to progress. Adopting new thoughts and belief systems require the patient to engage in the process and change behaviour. It is essential to foster a collaborative working relationship with patient and therapist each taking responsibility for encouraging change in the patient.

The session is concluded by emphasising the patient's central role on the programme. Although the therapy team are highly skilled and experienced, the most important person is the patient. Progress will be dependent on the patient's ability to engage with the process.

Written material is given out at the end of this and all of the subsequent sessions to supplement the information discussed during the session. The patients are encouraged to reflect on the written material and make the information relevant to their circumstances.

The provision of supplementary written materials has been recommended by Keefe, Beaupre and Gil (1996). Copies of all written materials are given in the Appendix.

Session 2. *Understanding Pain*

This session explores the multi-faceted nature of pain. In the author's experience, patients have rarely reflected on the nature of pain prior to a cognitive behavioural intervention. Patients will often discuss their pain from a biomedical perspective and be focussed on diagnosis, treatment and cure. This medical model encourages patients to be passive and does not emphasise their role in improvement. Thorn (2004) argues that the greatest therapeutic challenge regarding pain management is the dominance of the medical model which encourages the patient to be a passive recipient of diagnosis, treatment and cure.

This session will start by asking the group to define "pain". The International Association for the Study of Pain argues "*Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage*" (1986) although patients will often describe the consequences of pain rather than provide a clear definition. So it is difficult to define pain in a way that is meaningful or relevant for all patients. This can lead to a discussion about the unique and idiosyncratic identity of chronic pain. Distinctions will be made between acute and chronic pain experience.

Being told the pain may not go away, and that x-rays and scans may not explain the pain complaint can be upsetting for patients (Van Tulder, Assendelft, Koes, et al 1997). Patients may feel frustrated about previous treatments not ameliorating the pain or resulting in significant relief, or angry at a lack of investigations and treatment. It is important to accept the patient's anger but not helpful to blame other doctors or health care professionals for the patient's pain problem (Loeser and Sullivan 1995). The patient may hold on to the belief that their condition has not thoroughly investigated and inadequately diagnosed. Part of this session tries to offer reassurance that it is highly unlikely that something has been 'missed' and in fact, during their pain history have undergone a number of investigations and treatment.

A discussion on past experience of medical consultations and exploring expectations of treatment can also highlight the negative consequences of seeking medical opinion, being disappointed with the consultation or treatment, then repeating the cycle. This 'chronic treatment trap' has been described by Peck and Love (1986).

Discussing the consequences of chronic pain can help highlight avoidance of activity, decrease in social and recreational activity, social withdrawal, effects on psychological well being and a focus on pain (Gatchel 1996).

A large variation in self-report of symptoms with similar pathology has been reported. For example, Main and Spanswick (2000) report only 57% of patients with demonstrable major arthritis of the hip joint as identified by x-ray complained of pain. A magnetic resonance imaging study of the lumbar spine found that 76% of asymptomatic volunteers showed a disc herniation at one or more levels (Boos, Rieder, Schade et al 1995). By highlighting there is no clear relationship between pathology and pain, it is hoped the patient starts to move from the medical to the biopsychosocial model of chronic pain.

In this session, the veracity of the patient's health related beliefs will be tested. For example, patients may believe that pain intensity is determined only by the extent of tissue damage or injury. The role of emotions, attention, stress and fatigue in pain perception can help introduce the Pain Gate Theory. The role of descending inhibitory influences on pain perception can be used to justify using modulating techniques such as relaxation, pacing activities and mobilisation (Spanswick and Parker 2000).

Pain can be described using biological structures and introducing the *Pain Gate Theory* (Melzack and Wall 1965) is useful to explain how pain can modulate. Most patients will agree their pain intensity and coping fluctuates from day to day or even hour to hour and the patients are encouraged to suggest reasons for this fluctuation in pain state. This will often introduce the role of activity, stress and mood on pain experience. It is important to discuss how pain changes and is susceptible to external influences. The role of distraction is also discussed and patients will usually be able to describe an activity that takes their attention away from the pain.

It is important that the patient considers the possibility their pain is not fixed and can be affected by many influences.

Session 3. *Managing Stress*

Parker, Dumat and Booker (2000) have rephrased the ability to cope with chronic pain as the ability to cope with chronic stress, arguing that suffering chronic pain and its consequences are major stressors. The next session will explore the role of stress on chronic pain and using relaxation as an active coping strategy. In order to develop stress management techniques, there is a need to understand the psycho-physiological stress reaction. Many patients agree that stress augments their pain but struggle to understand why so an explanation of endocrine processes is provided, particularly the role of cortisol, a substance P agonist and the effect of other stress hormones on chronic pain (Gupta and Silman 2004). Patients tend to more readily accept biological explanations of pain modulation.

Keefe, Beaupre and Gil (1996) argue one of the most important problems encountered during group therapy for chronic pain is dealing with anger and high levels of emotional distress. Patients are asked to provide a definition of stress and similarly to when asked to define "pain", patients will often describe the effects rather than provide a definition. It is useful to describe stress as resulting from an inability to cope with demands of the environment. This discrepancy between resources and demands is usually well understood by patients. Patients are asked to consider their own stressors and why a particular situation is stressful. It is useful to ask patients what thoughts are present under stressful situations. This can be an opportunity to further explore the role of cognitions on behaviour and coping. The role of erroneous cognitions or maladaptive thinking can be explored with examples provided by members of the group. The group are asked to offer examples of useful and unhelpful coping styles. Cognitive restructuring is useful for trying to replace cognitive errors with more adaptive thinking, drawing on rational emotive therapy (Ellis 1979). The *ABC* of stress (antecedents, beliefs and consequences) helps to consider unhelpful cognitions and their effect on mood (Ellis 1962).

It is hoped that by identifying the antecedents, beliefs and consequences of stress, the patients can move on to challenging their beliefs and adopt more adaptive cognitions. Positive coping strategies are offered if patients struggle to make their own suggestions.

Developing problem solving skills are also highlighted in this session and draws on the work of Lazarus and Folkman's (1984) theory of stress and coping which distinguishes between problem and emotionally focussed coping.

The role of relaxation is explored with different techniques described (Jacobson 1974, Bernstein and Borkovec 1973) with the suggestion that one size does not fit all and there may be a need to test different relaxation strategies. Behavioural experiments are useful for testing out new stress and pain coping strategies (Parker, Dumat and Booker 2000). Patients are encouraged to practice these new techniques on the programme.

Session 4. *Managing Mood*

A major goal of pain management is to teach patients to challenge and change unhelpful or negative thinking (Parker, Dumat and Booker 2000), and the reciprocal relationships between affect, behaviour and cognitions are described.

A more thorough exploration of negative thinking occurs in this session, "Managing Mood". Drawn from traditional cognitive behavioural literature (Beck 1976 Ellis 1979), a list of different types of negative thinking is offered and include examples such as *all or nothing thinking*, *magnification* and *overgeneralisation*. For every example of negative thinking, strategies are offered of how to challenge such thinking. Examples of negative thinking provided by patients will be used and they will be encouraged to provide examples of more realistic thinking. Emphasis is made on the influence of beliefs on behaviour, and the consequences of behaving in such a way. Patients are asked to look for the evidence of holding a particular belief and whether the evidence justifies the belief.

One particular and common belief is that of feeling guilty, with the patient often feeling they should be coping more effectively by doing more household chores or working, for example. It is suggested that pain patients cope in the best way they know how and the programme encourages the acquisition of new skills thus providing the patient with an improved repertoire of coping skills. The patients are encouraged to identify unhelpful beliefs throughout the programme and to challenge with alternative thinking. The issue of guilt may be re-evaluated in the light of changed thinking and patients may recognise that despite significant health problems, they are coping reasonably well.

Session 5. *Assertiveness*

Parker, Dumat and Booker (2000) include assertiveness training in their description of an inter-disciplinary pain management programme. Assertiveness training in chronic pain management can help to improve relationships, gains respect from significant others and helps the patient to improve their confidence (Thorn 2004). Thorn (2004) has described the utility of assertiveness training for chronic pain patients because interpersonal factors may promote or maintain disability.

Fedoravicus and Klein (1986) included assertiveness training as part of a multi modal treatment package for veterans of the Vietnam War with chronic pain, although the efficacy of individual components was not examined. This multi modal package improved social skills.

Thorn (2004) has argued the need to improve assertiveness for chronic pain patients and is grounded in research examining interpersonal relationships. Research examining the interpersonal relationships of chronic pain patients has focussed on spousal interactions, and in particular on 'solicitous spouse behaviour', which has been associated with poor pain outcomes. For example, several studies have shown highly solicitous behaviour by the spouse to be a strong predictor of heightened pain, lower activity levels and increased disability (Flor, Kerns and Turk 1987; Flor, Turk and Scholz 1988; Williamson, Robinson and Melamed 1997).

Expressing negative pain related thoughts and emotions to significant others may foster solicitous behaviour. This session offers the patient an assertive rather than 'pain expressive' method of communication (Thorn 2004).

This session on assertiveness provides a particular challenge as some patients readily admit to lacking assertiveness, while others take the opposite view, believing they very assertive. It is a challenge when a patient expresses the view, "this does not apply to me". Patients are encouraged to consider that improvements or alternatives are always a possibility. Patients will often recognise they can be their "own worst enemy" with examples such as over doing activity, allowing oneself to be manipulated or exploited and not speaking up for oneself. A lack of assertiveness is a common theme underpinning being one's own "worst enemy". Patients are asked to offer definitions or examples of being assertive.

For some patients, speaking up for themselves is extremely difficult, not only with strangers but close family members also. The session will also provide an exploration of communication styles and suggestions for improving effective communication. Patient examples will be used and members of the group will make suggestions how for example, requests for help can be politely declined. As discussed above, a patient's sense of guilt can underpin a lack of assertiveness. Many patients will not speak their mind in order to avoid conflict and talk of "keeping the peace". Realising that being assertive is not the same as being rude or aggressive can be empowering for many patients. Lack of assertiveness may be explained by the desire to avoid causing conflict. There is usually opportunity to practice being assertive on the programme and role play can be employed within the session. As with all behavioural experiments, it is essential to try out the behaviour, reflect, review and modify the strategy if needed. Trying out new strategies for improving assertiveness will be easier in the safer environment of the programme.

Session 6. *Family and Friends*

The next session focuses on the role of family and friends. Material from previous sessions is consolidated particularly around communication styles and being assertive. Chronic pain suffering cannot be simply viewed from the patient's perspective and will clearly have an influence on the quality of their relationships (Flor, Turk and Scholz 1988). Suffering is usually in the public arena and will impact on those closest to the patient. The group is encouraged to view pain suffering within a systems approach (Bennum 1988), with a collection of reciprocal interactions. Patients are asked to consider how they behave towards family and friends and reflect on how family and friends feel about their pain. The group is asked to think about the rules and characteristics of their family and how they impact on their pain and coping (Williamson, Robinson and Melamed 1997).

The effects of chronic pain on relationships are discussed. Peck and Love (1986) describe how incapacity can lead to a shift in duties to the partner and fewer joint activities can lead to a less rewarding relationship. A person in pain may withdraw from social interactions or obligations and the subsequent sense of isolation will augment the suffering. Patients are asked to consider how the pain has affected family life. While some patients withdraw, others try to cope by trying to overcompensate and not "letting the pain beat me". Some patients will describe how family members will display solicitous behaviour which can absolve the patient of family responsibilities (Flor, Kerns and Turk 1987). By attempting to care for their relative in pain, family members may augment and reinforce disability. Patients are encouraged to review the quality of the relationship and highlight how it might be helping or possibly undermining their ability to cope.

The role of the emotional climate within the family home is also explored. Consolidating on the earlier session on stress, patients are asked to identify possible stressors within the family. A review of communication patterns and styles may encourage patients to reflect on their role in difficult familial situations. Many patients come to realise that a particular relationship is causing stress and are determined to improve such a relationship.

Some patients realise that a particular friendship is exploitative and attenuating their coping and leave the programme with the intention of distancing themselves from that friend.

A discussion of familial roles and how those roles may have changed due to pain can also help improve communication. Patients are encouraged to discuss the programme with family and friends. As previously discussed, the patients return home at the end of weeks one and two and are encouraged to introduce and practice the new coping strategies within their home. One constant concern expressed by patients is questioning the real life applicability of the programme. Patients acknowledge it is far easier to practice new coping strategies on the programme where they are not distracted by the routine and demands of their home life. Involving close family in achieving discharge goals may help to maintain progress. The ABP service demands the development of a new session that will involve inviting a family member or close friend to a dedicated group session. It is expected that this session would help to inform about the structure and aims of the programme, and provide an open forum for discussion. Patients are reminded that the programme focuses on achieving change which will have consequences for those closest to the patient. It is hoped these changes will be embraced but experience suggests that some family members may inadvertently undermine the programme by resisting change. This new session will better prepare family members and friends for such changes.

Session 7. *Maintenance Strategies*

Marlett and Gordon (1995) identified four steps in relapse prevention: being aware that relapse is occurring; remaining calm and employing relaxation techniques to prevent exaggerated emotional response; reflecting on the antecedents leading up to the set-back, and utilising a set-back plan.

Keefe and van Horn (1993) suggest relapse is more likely if symptoms increase in intensity, a weakened sense of symptom control, and psychological distress is magnified. They have described four key skills to help patients cope with relapse; practise in identifying high risk situations that are likely to compromise coping ability; practise in identifying early warns of relapse; rehearsal of coping skills to these early relapse signs, and training in self-reinforcement for effective coping with early relapse.

The final session is devoted to preparing patients for discharge and maintaining their progress. Patients will usually be optimistic and positive about returning home, and eager to implement newly acquired coping strategies. This final session can be an opportunity to explore any concerns and explore strategies for minimising 'slip ups' or occasions when progress is not maintained and the patient is in danger of falling back into old maladaptive patterns of behaviour. Common topics for discussion will include such issues as being distracted by family commitments, over-activity or indolence. There will be discussion around strategies to prevent losing focus. Patients will leave with good intentions but are warned to be vigilant of slipping back into old habits. The group is warned about risk factors that contribute to slipping back into old habits. The role of stress, habitual behaviour and lack of support are all common risk factors. Group members are asked to reflect on what risk factors could be relevant to their situation.

Realistic goal setting is an important strategy for ensuring progress is maintained after discharge. Patients are taught how to set long term goals such as return to work and are more likely to be achieved and more sustainable by setting smaller short term goals. A key question put to the group at this session is "what needs to change in order to achieve your goal"? Throughout the programme, patients are encouraged to think about their goals, which are set at discharge and reviewed at the follow up sessions. Examples of goals from previous programmes are offered to prompt discussion. Long term goals are suggested and the group is asked to design the necessary short term goals. It is interesting to note at this session how easily members in the group will problem solve the goal setting exercise.

The final part of the session explores what happens when slip ups occur or when a patient loses focus. Patients are warned about complacency and told although many patients make significant progress after discharge; others struggle and fall back into old maladaptive behaviours. Set-back plans are discussed as strategies for coping with pain flare-ups or loss of focus (Parker, Dumat and Booker 2000).

Losing focus should not greeted with apathy or anger, instead it should be used as an opportunity to reflect, consider why the focus was lost and make plans to recover progress. Being too harsh or judgmental will not encourage re-focusing on goals. It is useful to accept the disappointment but not to dwell and make plans to get back on track. Patients are encouraged to read their programme file, which by discharge should have developed into a pain management resource. Contact details of the staff are included in the file and patients are encouraged to use these details if further support is needed.

Problems within Group Therapy

It often takes time to convince a patient about the validity of the biopsychosocial model of chronic pain. A patient may initially be sceptical that a psychologist is involved in the programme. Lay understanding of psychology may act as a barrier to engaging during my sessions. Lay perceptions of the role of psychologists have included believing there is a hidden agenda and the role is to determine those patients exaggerating or imaging their pain, or thinking that it is the belief of their Consultant and the ABP team that the pain is "in their head". From the outset of the programme, it is clearly stated that the ABP team unconditionally accept the patient's pain complaint. The role of thoughts and feelings on pain suffering are explained and the author's interest is in the consequences of chronic pain, such as anger, frustration and compromised quality of life.

It is clear from the evaluation sheets (discussed below) that patients generally find the psychology sessions most challenging. This finding might be explained because the patients are encouraged to introspect and consider their role in suffering chronic pain and may feel uncomfortable with the process. There is a danger of appearing judgemental and there is a need try to challenge erroneous assumptions with sensitivity. The author believes part of the role is to facilitate and encourage change, rather than criticise or make value judgements.

A problem commonly seen occurs when a patient's expectation of treatment outcome is not met by the programme. At assessment, patients are clearly told and given supporting literature that pain relief or cure is not the focus of attention. Nevertheless, some patients will still hope that pain will be reduced, particularly and possibly encouraged by the hospital based setting. It could be argued that community based programmes would help to further de-medicalise the pain problem.

It is important to watch for signs that a patient is not engaging such as passive aggressive behaviour, vociferous complaints or apathy. It can useful to speak privately to such a patient and try to offer reassurance and reiterate the core aims of the programme. Some patients may expect group therapy to fail because they view their pain as a problem that can only be helped through medical treatment. These patients may fail to engage in treatment or prematurely drop out of group therapy.

Some patients will interfere with the group process. For example, some will attempt to dominate discussions if permitted, or use the time to complain about their frustration with poor medical treatment. Anger and frustration are common sequelae of chronic pain and regularly displayed within the group. Firm but sensitive handling is needed to ensure dignity of each patient is maintained.

Characteristics of the group

The group size can influence interactions and determine group cohesion. Keefe, Beaupre and Gil (1996) suggest the group should vary between 4 and 8 patients. Fewer than 4 might mean group cohesiveness is threatened if one patient misses a session. While a group greater than 8 might not allow sufficient time for individual contribution and feedback. On the ABP the average group size is eight patients. The author has found it more productive to work with more, rather than fewer patients. Smaller groups may struggle to provide the number of options provided by a larger group when, for example, engaged in a problem solving exercise. The group always comprises more women and reflects referral patterns seen throughout other pain services in the Royal National Orthopaedic Hospital.

It is interesting to note the different roles that some patients assume in group therapy. The *group initiator* is a member taking on responsibility for answering questions and breaks awkward silences. The *group joker* will often diffuse tension or adds humour to the discussion. The *group parent* is the patient who takes on a parenting role, offering comfort and support to other members. The *group challenger* may question the model of the programme, expressing doubt about the validity of group therapy. The author considers a key function within the group is to facilitate, challenge, confront and provoke at times. A key focus of the psychology sessions is to encourage introspection and require the patient to ask of themselves "how is this material relevant to me"? Although there may be a need to confront, for example an inflammatory remark from one member to another, the group cohesion needs to be maintained. Proposing an alternative view can often help to diffuse difficult situations. There is also a need to be aware that many core pain beliefs may have been held for many years and alternative explanations need to be presented with sensitivity and discretion.

Interdisciplinary Team Working

The ABP therapy team changes every six months due to staff rotation. Some colleagues embrace the model and others struggle with the "hands off" approach. Rather than relying on input from health professionals, the patients are encouraged to become self-managing with support from the health professions. Problems can occur when more experienced members may be resistant to new ideas introduced by less experienced or newer members of the team. Although staff rotation can be difficult, it can also be an opportunity to review the team dynamic and be an impetus for positive development. Orientating new members of staff is essential. Taking time to explain their specific role and those of the rest of the team, and how the team delivers the service can help to integrate new team members.

Working in chronic pain management is very demanding and it could be argued that "burn out" is a risk factor for cohesive team working. Burnout in chronic pain settings can lead to high levels of absenteeism and high staff turnover (Spanswick and Parker 2000). Peer support helps to prevent burn out.

Trying to help patients who can often be highly distressed, demanding and fearful can drain the therapist's own coping and leave them vulnerable to stress-related concerns. Many changes have occurred in the structure of the team and clearly some colleagues find the work very rewarding while others struggle, are frustrated and may move on to other posts. New members may struggle adapting to working in a multi-disciplinary team. There is clearly pressure to "do something" when medical treatment options are limited. Some patients consider the pain management programme as their last chance for help and this burden of responsibility can weigh heavily on members of the therapy team. Support systems should be available to help team members "cope with the emotional pressures that can occur when working with such a demanding group of patients" (p.354 Spanswick and Parker 2000).

Effective communication skills are essential for cohesive team working, although colleagues have described how their uni-disciplinary training has poorly equipped them and thus failed to develop such skills. The Team have seen how patients can exploit a weakness in the team, such as poor communication. To offer support to colleagues, the author runs in-service workshops to develop skills and reflect on practice, including "Effective Communication" and "Dealing with Challenging Situations". Conflict within the team is always possible and needs confronting and managing rather than retreating and ignoring the problem which can lead to fracturing, protectionism and suspicion, and ultimately compromise patient care. Interpersonal problems can occur when areas of professional overlap leading to conflict between different disciplines. Professional and inter-discipline rivalry can lead to a lack of respect for other disciplines' training and qualifications, or some members of the team perceiving themselves as more important than others. Fragmenting of the team can be avoided by ensuring good communication, controlling the size of the team and encouraging group cohesiveness by collaborating on service development (Spanswick and Parker 2000).

Robust structures and procedures can help the team deal with conflict. It has been found useful to devise clearly defined protocols and procedures and to agree the operating model of care delivery (Adams 1997, Parker, Dumat and Booker 2000).

When difficult situations occur, the author has encouraged debriefing and reflective learning to be useful strategies for improving future practice. Encouraging all members of the team to be responsible for outcomes helps to ensure collaborative working. Time needs to be set aside for team development and team building, which can be achieved through staff training and ensuring effective communication channels. Effective communication can prevent many interpersonal problems and early intervention can help resolve and improve communication problems.

Since joining the team, the author has found his role has changed. From originally just delivering group therapy, now takes a more proactive and leading role within the team. The dynamic within the team is constantly changing and needs monitoring to ensure good practice. Regular meetings can help avoid feelings of isolation, but equally can be frustrating when not productive. These meetings can enable individual team members to express concerns and develop improved practise by identifying the source of any concern and devising written strategies for resolution.

Evaluation of the Service

The *Health and Social Care Act 2001* requires NHS Trusts to involve their service users in "(a) the planning of the provision of those services, (b) the development and consideration of proposals for changes in the way those services are provided, and (c) decisions to be made by that body affecting the operation of those services." (Section 11, Subsection 1 *Public Involvement and Consultation).* No patient evaluation of the programme or formal service user consultation was undertaken. In order to address these legal requirements, a questionnaire was constructed for each week of the programme containing both quantitative and qualitative items in order to improve clinical standards by encouraging the therapy team to reflect on their practice, (see Appendix). Patients are required to rate the usefulness of each session. Patients are also asked to rate how well each session was delivered and understood. Patients are further asked to list the sessions which made the most difference and those least helpful. Finally, patients are asked to give an overall rating of the programme and comment on how well their group has interacted.

If concerns about the group dynamic are highlighted, the therapy team will be encouraged to reflect how future difficulties can be managed. Patients are encouraged to use the sheets for any additional comments and raise any concerns. Patients were informed that completion of the questionnaires was voluntary and confidential and 162 consecutive patients have completed the measures over a three year period.

Results

When asked to state which sessions made the most difference to patients, ranking by popularity analysis identified a trend for the physically active sessions such as Exercise, Sport and Gym to be highlighted. This pattern of results was also seen when patients were asked which session they found most useful. It was difficult to interpret the data from the item asking for least useful session as less than 1% of patients responded.

Patients rated as most difficult to understand to be the educational / discussion sessions. It could be argued that the physical sessions are psychologically "easier" or less threatening compared with the more cognitively challenging and introspective sessions. This suggestion is supported in the findings on patient rating of how easy particular sessions were to understand. It could be argued how repeating a particular stretch exercise is less demanding than trying to identify maladaptive beliefs.

Exercise and posture sessions may have greater face validity than managing mood or stress. As previously mentioned, some patients are suspicious of my role as health psychologist, with some erroneously thinking their pain was assumed to be imagined.

Overall patient satisfaction with the programme was scored at 33% as completely satisfied, 52% as very satisfied and 15% as satisfied. Group cohesion rated as good or excellent reached 96.3%.

Most patients used the further comments section as an opportunity to discuss the hotel accommodation and to thank the therapy team but a number of key themes emerged and are discussed below.

Developing the Service

The evaluation led to several changes in clinical practice to the programme. The patients expressed the need for more time between therapy sessions. Some patients felt under pressure to rush in order to be on time for the next session. The ABP team have responded by reviewing the timetable and allowing more time when patients have to walk from one department to another. A second concern was the need for more informal discussion during therapy sessions. The therapy team have undertaken a review of the timetable and found some duplication that needed streamlining. This has enabled more discussion time to be timetabled into the programme. The third issue was a concern about expected standards of behaviour from both staff and patients. As described earlier, problems can arise that threaten group cohesion and progress. At worst, these issues can escalate and result in a patient's early discharge from the programme. While reviewing these incidents, it was clear that more information was needed to be given to patients prior to admission. A Code of Conduct document has now been piloted and implemented. This document explains for both patients and staff what standards of behaviour are expected. For example, the need for compulsory attendance and punctuality for group sessions is clearly stated.

The literature given to patients at assessment was redesigned to emphasise the unconditional acceptance of pain complaint by the therapy team, and also the educational focus of the programme. Homework topics were also reviewed to augment previous understanding and learning. A new session (*Learning to Change*) was designed to be delivered on day two with dual aims: first to offer greater explanation of the role of a health psychologist and secondly, to emphasise the primary focus of the programme to be encouraging change in the patient.

Another finding of the patient evaluation sheets was the need to provide individual feedback to the therapy team. Just over a quarter of patients (27%) felt the need to have time to meet with individual members of the therapy team to discuss their progress and any concerns. The patients are now told that time will be made available for an individual session with a member of the therapy team.

Subsequent evaluation of the individual feedback session suggests this change to the program has proved useful for the majority of patients who valued the opportunity to meet on an individual basis with a member of the team, and enabled particular issues to be raised which would probably not be discussed without this session. It is worth noting that the session is not fixed and relatively few patients take up the option.

A further development that has occurred as a result of the on-going evaluation is the introduction of a new session on sexual intimacy. Patients would regularly refer to sexual difficulties and the need to get support with this sensitive issue. Patients would describe how lovemaking was severely compromised due to low back pain, with subsequent consequences of distance or frustration between partners. There was a clear need to offer more support to patients and a number of possibilities were explored, one being the service provided on the Spinal Injuries Unit of the hospital. A clinical nurse specialist provided the sexual matters service on the Spinal Injuries Unit. The author approached this colleague who after a series of meetings, agreed to run a pilot session in the programme. It was decided to run consecutive sessions, one each for women and men, and to make attendance at this session voluntary. This is fact remains the only session on the programme where attendance is not compulsory.

Results from patient evaluation of the first four of these sessions supported the need for such a session; 100% (n = 14) of the patients thought the session was either "useful" or "very usefull" and agreed the sessions should continue. Additional comments mentioned the need for advice on medication and, suggested the patients be supplied with some preparatory literature prior to the session. These changes were subsequently incorporated into the Programme. In summary, the feedback was very positive and the programme structure was changed to accommodate this new session.

Future Developments

The patient evaluation of the ABP has also identified a number of suggestions of how to improve the Programme. The need to involve family members is a consistent finding. Parker Dumat and Booker (2000) have argued partners should be involved in the assessment and invited to a separate session. At the assessment it should be made clear of the importance of them attending the individual session. Parker, Dumat and Booker (2000) suggest that for pain management principles to be successfully applied both partners and family members need to have an understanding of this approach and argue that a partner session is a "vital element" of any pain management programme intervention. Future initiatives will include designing a survey to gain the views of patients and partners on what would be useful to include in a partner session. The structure and content will then be designed and pilot sessions run in order to evaluate the partner session.

Although discharge goals are set, *Goal Attainment Scaling* (GAS) as a method of evaluation and enhancing therapeutic efficacy (Kiresuk, Smith and Cardillo 1994) is not formally employed on the ABP. The author's experience of using GAS has found it to be sensitive to detecting change, easy to administer and therapeutically useful. It is the author's intention to implement GAS onto the ABP by designing in-service training for colleagues in order to develop the appropriate skills for those who are unfamiliar with this technology.

In order to justify using GAS on the previously described pain management programme in Chapter 5, and argue for its inclusion on the ABP, there is a need to review the literature and report on the author's clinical experience of using this technology. The author's experience and the published literature support using GAS in physical rehabilitation settings, are described in the next chapter.

Summary

This chapter has described the role of a health psychologist on the Active Back Programme. Since being invited to participate, the author has developed and now delivers seven sessions of group based cognitive behavioural therapy. Further, this chapter has described how the author has designed, administers and analyses on-going patient evaluation of the programme which has led to changes in the delivery of the programme. The Consultancy described above has been reported at conference, including presentations on *Multi-disciplinary Pain Management Working* and *Patient Evaluation of the Active Back Programme.*

Chapter 8

Section D. Critical Literature Review

Goal Attainment Scaling with focus on Pain Management Settings

Introduction

This work will critically review Goal Attainment Scaling (GAS) from its conceptual background and development, to recent applications. The process of using GAS will be described, with an outline of the problems often encountered. Evidence for psychometric evaluation will be discussed. The application of GAS in pain management settings will precede a summary of only two critical reviews published on GAS. An overview of recent developments and publications will also be discussed.

This work will argue for using GAS in pain management settings. Zaza, Stolee and Prkachin (1999) have suggested a number of limitations of existing standardised measures of pain. Foremost is the concern that standardised scales may fail to capture those concerns most important to the patient. Similarly, the patient may be asked to respond to particular items on a scale that are not relevant to their pain experience. Further, such scales may fail to discriminate meaningful changes for the patient post treatment. Standardised scales may not be sensitive to the unique and idiosyncratic pain experience of each patient. For example, measures of pain intensity or pain related cognitions may not pick up changes in family dynamics post treatment. This work will argue that GAS is a patient centred approach to measuring change in pain management settings.

Historical Introduction

Kiresuk (1994) provides a historical description of GAS and focuses on human service evaluation. The social unrest of the 1960's provided the backdrop to changes in mental health practice and the "therapeutic community" approach concentrating on patient needs was an important shift of emphasis. Kiresuk and coworkers hoped that GAS would be a "conceptual lever for change but the more appropriate image might be that of a leaf floating on this river of change" (Kiresuk 1994, p.139).

Kiresuk (1994) points out that during the early 1960's outcome measures were clumsy and in danger of not detecting improvement. Rating scales could allow both high and low scores to indicate progress and "there could be serious dispute regarding the direction or magnitude of change that would be considered desirable" (Kiresuk 1994, p.145). Kiresuk and colleagues felt patients should decide on measurement and judge progress themselves. Kiresuk and Sherman (1968) published their first paper titled "*Goal Attainment Scaling: A General Method for Evaluating Community Mental Health Programs*". A key part of this seminal paper was using the criteria of prior expectations in order to evaluate a programme.

By the early 1970's, several papers were published demonstrating potential utility for GAS, including Baxter and Beaulieu (1974) who evaluated a mental health out-patient programme, and Shrier and Walstrom (1974) who evaluated groups in mental health settings. A study by Kiresuk (1975) found GAS able to differentiate one therapist from another, although all of these early studies were confined to mental health samples. The early development of GAS led Kirusek to travel the United States presenting his findings to professions as diverse as economists, religious leaders and educationists. Many criticisms were directed at GAS during these presentations and led to further developments, particularly concerned with psychometric issues. In order to disseminate GAS further, "Goal Attainment Review" was published, helping users of GAS to communicate and share ideas. This in turn led to GAS being widely adopted during the latter part of the 1970's and early 1980's across different settings other than clinical use, such as education, vocational rehabilitation and social services (Kiresuk and Choate 1994).

A more recent development was reported by Kiresuk (1994) who surveyed known users of GAS and found 60% applied the method to therapeutic intervention and not simply as an outcome measure.

Conceptual Background

The underpinnings of GAS began with the study of "intentionality" and Locke, Shaw, Saari et al (1981) suggest the history of goal setting can be traced back through organisational and academic psychology. The fields of learning theory, social psychology and research into motivation were discussed by Ryan (1970) in his book on intentional behaviour and later expanded by Fishbein and Ajzen's "Belief, attitude, intention and behaviour: An introduction to theory and research" (1975).

Early examples of goal setting can be seen in the programme evaluation work of Ward (1906), Chapin (1917) and the development of management sciences in the work of Taylor (1911). The work of Drucker (1954, 1964) and Odiorne (1965) led to the school of Management by Objectives, and simultaneous developments in psychiatry and psychotherapy had similar core ideas. For example, Battle, Imber, Hoehn-Saric et al (1966) are credited with the focus on target complaints and patient expectations in treatment. Similarly, Tyler (1949) used goal-orientated evaluation in education.

Kiresuk (1994) also highlights the concept of 'prognosis', first postulated by Hippocrates (1886) who described forecasting a probable outcome of a disease. Another contribution to the development of GAS was increasing acceptance of Bayesian approaches to statistical analyses. This approach attempts to use all available information in order to develop statements of statistical inference. Finally, Kiresuk (1994) highlights the growth of psychometrics and using measures to assess pre and post treatment changes. Since GAS has no fixed content, it is not a psychometric measure in the usual sense. Nevertheless, it is still bound by the psychometric standards such as adequate specification of scaling characteristics, reliability and validity.

Soon after being first reported, some clinicians found GAS to have a therapeutic effect (Jones and Garwick 1973, Smith 1976). Patients participating in the GAS process were reported to rate themselves higher in motivation, greater desire to change and show more significant change than those who did not participate. GAS participants were also found to do better on standardised tests. Although, these studies were either not well controlled or lacked baseline data (Cytrynbaum, Ginath, Birdwell et al 1979). This work will argue that GAS is a useful tool in pain management settings and particularly lends itself to reflecting individual circumstances that might be missed in standardised measures.

Psychometric evaluation of GAS

Williams and Stieg (1987) highlight the problem of how to adequately measure success when evaluating outcomes of treatment programmes. Standardised tests are routinely employed and inferences made to the wider population, but these measures are insensitive to the richness of an individual's data or uniqueness of their goals. GAS attempts to address the sensitivity issue and since first being described by Kiresuk and Sherman (1968) a flurry of articles have attempted to assess the psychometric properties of GAS. These findings lead to the conclusion that GAS demonstrates moderate to high reliability but inconsistent validity (Williams and Stieg 1987).

Although the psychometric properties of GAS have been reported in many clinical settings (Zaza, Stolee and Prkachin 1999), psychometric evaluation in chronic pain settings is lacking. Zaza, Stolee and Prkachin (1999) particularly highlight the need to demonstrate inter-rater reliability for an individualised measure such as GAS.

Williams and Stieg (1987) suggest that although individual levels for each goal are technically ordinal measures, the fact that there are five levels makes it behave and can be treated as a Likert scale. Williams and Stieg (1987) argue that GAS scores are moderately reliable under two conditions: first, when patients are involved in the goal setting procedure and second, when goal setting staff are not involved in treatment.

A search of the literature revealed one critical review published in 1979 by Cytrynbaum and colleagues, and a more recent systematic review by Hurn Kneebone and Cropley (2006). At the time Cytrynbaum, Ginath, Birdwell et al (1979) described GAS as "the most popular outcome evaluation technique in the human sciences" (p.5). The next section will summarise the findings of the two reviews and consider the evidence for using GAS in evaluative and therapeutic settings.

Cytrynbaum, Ginath, Birdwell et al (1979) assessed over 200 published and unpublished GAS references in terms of completeness of information reported and the quality of the study. By initially eliminating multiple references and case studies, and focussing on those studies with quantitative data, the pool of references was reduced to 91 studies. Cytrynbaum and colleagues applied further criteria for inclusion and specified seven areas in order to meet completeness of information, including goal setters and procedure clearly specified and reported reliability data on GAS. The quality of the study was again judged on seven criteria including design characteristics and appropriateness of statistical analyses. If studies violated two or more criteria, they were excluded from the review. The 91 studies were reviewed and independently rated by at least two randomly assigned researchers.

Inter-rater reliability was assessed using the Kappa method (Cohen 1968) and ranged from 0.76 to 1.00 and were all highly significant. In those cases where the reviewers disagreed, other reviewers were used and differences resolved by the group as a whole. The resolution procedure was needed on only four occasions. Of the original 91 references, 26 were judged to meet the criteria and a further 15 which failed to meet completeness and / or quality criteria but still warranted inclusion due to sufficient information and / or usable data. Thirty nine references were excluded from final review, leaving a sample of 41 articles. The most frequent setting for these references was in outpatient services (n = 15).

According to Kiresuk and Sherman's (1968) seminal paper, GAS contains three basic assumptions and requirements; first, that goal setting and treatment be independent, second, that patients be randomly allocated to treatment conditions after goal setting and thirdly, determination of achievement and scoring of goals at follow up be done independently from service delivery.

A telephone survey by Calsyn, Tornatzky, and Dittmar (1977) found serious violations of all these basic assumptions, particularly when only 37.2% of 44 programmes set goals independently of treatment. In summary, only 5 of the 44 programmes complied with all three requirements. Comparable analyses by Cytrynbaum, Ginath, Birdwell et al (1979) found similar findings. This evidence suggests most users of GAS are not meeting the basic assumptions as originally set out by Kiresuk and Sherman (1968). This deviation or development from the original description is a recurrent finding and further discussed below.

Cytrynbaum, Ginath, Birdwell et al (1979) raise concerns about training and competency. In their review of the 41 articles, only 21 described the training and experience of goal selectors. A further concern is the possible confounding effect of the final T-score used for statistical analyses. The random allocation of patients to different treatment conditions subsequent to the goal setting process would help minimise this source of systematic bias, but very few studies adhered to this procedure. This finding left Cytrynbaum and colleagues warning that "the interpretation of the final T-score becomes difficult if not impossible" (p. 16).

In reviewing the GAS literature, Cytrynbaum, Ginath, Birdwell et al (1979) were surprised by the frequency of major departures from the original model and conclude it is no longer possible to consider GAS as a single model, although believed the application of GAS as a therapeutic tool and not simply an evaluative technique was a useful development.

When reviewing the reliability of GAS, Cytrynbaum, Ginath, Birdwell et al (1979) conclude the evidence is equivalent and difficult to interpret. It is clear that some studies were well designed but questioned the model of reliability employed and the conclusions drawn. For example, although some studies published test retest data, it does not follow logically from classically described GAS because a standardised set of rating scales is not a characteristic.

The validity evidence left Cytrynbaum and colleagues with similar regard to the quality of the data. They express the view that "some confusion remains about whether it is possible to establish the validity of GAS and about what a GAS score measures" (p.35). Sherman (1974) explains the lack of validity by describing the GAS score as a "floating concept" and not likely to correlate with other measures. Garwick (1974a) suggests that since GAS is an individualised measure, it is unlikely to correlate with "something which applies the same standards to everyone" (p. 135). It appears that supporters of GAS are suggesting because of its flexible structure then is not amenable to the same standards of validity imposed on other measures.

Validity studies have mostly concentrated on concurrent validity with occasional discussion of content and construct validity. Support for content validity has been most strongly proposed by Sherman (1974) who argues "Content validity is validity established by the fact that the measure in question is composed of a random sample of behaviours (or 'items') the totality of which is the entity we represent to measure" (p. 18). Cytrynbaum and colleagues (1979) remain unconvinced of the argument for content validity. Typically studies demonstrating content validity (Audette 1974 Carlson 1974 Lampman, Garwick and Grygelko 1977) catalogue patient problems or involve rating of goal sheets in terms of goal appropriateness and reasonability. The authors generally conclude on the basis of percentage distributions of ratings by assessment staff was high. However, Cytrynbaum, Ginath, Birdwell et al (1979) find these methods to support content validity at best "unconvincing".

Concurrent validity of GAS has been most frequently reported and focuses on correlating GAS outcome or change scores with one or more independent outcome measures. Examples of such studies have used personality assessment instruments (Smith 1976, Mauger, Stolberg, Audette et al 1974, LaFerriere and Calsyn 1977), achievement tests (Hegion, Fish and Grace 1974), self-report symptom checklists (Garwick 1974a), objective global ratings (Garwick 1974b, Weinstein and Ricks 1977) and self-reports on quality of service and satisfaction with treatment (Jacobs and Cytrynbaum 1977, Santa-Barbara, Woodward, Levin et al 1977). The most common method was to correlate GAS with what Cytrynbaum, Ginath, Birdwell et al (1979) describe as "consumer satisfaction" measures, and evaluated 12 such articles.

These consumer satisfaction measures are personalised and individualised and it was predicted would correlate highly with GAS scores. The evidence did not support this prediction. Cytrynbaum, Ginath, Birdwell et al (1979) conclude the concurrent validity for GAS is "in doubt", although when used as an intervention, GAS correlated highly with satisfaction measures (Garwick 1974a, Smith 1976, Willer 1975).

Evidence is also lacking in support of construct validity. Cytrynbaum, Ginath, Birdwell et al (1979) argue that no underlying theory is used to embed the construct and that researchers such as Garwick (1974b) have erroneously applied the notion of construct validity to GAS. Questions still remain over what GAS is measuring.

In their critical review Cytrynbaum, Ginath, Birdwell et al (1979) present a "rather mixed and occasionally discouraging picture of GAS" (p.33). Surprise was expressed at the number of studies that met "minimal criteria" for completeness and quality, stating fewer studies would have been included using more stringent standards. It was noted that some of the rejected studies were published in refereed journals. GAS has been adapted since the original paper describing its use in mental health treatment evaluation. Particularly welcomed is the development of GAS as a therapeutic tool and helping to improve clinical decision making. Less welcome is what Cytrynbaum, Ginath, Birdwell et al (1979) describe as the serious violations of assumptions and requirements to the original model. Serious methodological concerns were also raised about the reliability and validity of GAS and the quality of research supporting such psychometric properties. Cytrynbaum, Ginath, Birdwell et al (1979) conclude their review by suggesting the popularity of GAS as an evaluative technique is not justified by supportive research and argue that any use of GAS should be based on the original model.

A more recent systematic review was published by Hurn, Kneebone and Cropley (2006). The main purpose of this review was to evaluate the reliability, validity and sensitivity of goal setting and GAS. Published material was identified by searching seven computerised databases from January 1968 to December 2003 which included Psych Info, MEDLINE and the Cochrane Database.

Any type of goal-setting approach was included in the search which found over 23,000 articles, with 6795 within rehabilitation settings. After excluding articles in mental health, learning disability and child/adolescent settings, 252 articles remained. The authors used the WHO definition of rehabilitation "the use of all possible means to reduce the impact of impairments and disabilities" (WHO 1981). The authors used a strict inclusion/exclusion criteria and a further 237 articles were excluded, leaving 15, of which 11 directly examined GAS.

Hurn, Kneebone and Cropley (2006) concluded the evidence for construct validity was limited to one study but positive (Williams & Stieg 1987). This paper examining construct validity uncovered a factor which the authors suggest could be a measure of improved coping skills, improved self-esteem or general sense of well being within an adult physical rehabilitation setting.

Support for predictive validity of GAS came from two studies which provided support for GAS as an outcome measure (Goodyear & Bitter 1974, Malec, Smigielski & DePompolo 1991). These studies found evidence for using GAS as a predictor of work outcomes.

No evidence was found for the test-retest reliability, but evidence from seven studies provided support for the inter-rater reliability of GAS, within a variety of rehabilitation settings and patient groups. They also concluded wide empirical support for congruent validity, describing how GAS was positively correlated with a variety of standardised measures.

Hurn, Kneebone and Cropley raise concerns about describing GAS as a "standardised approach" since it has undergone many adaptations since first described by Kiresuk and Sherman (1968). These concerns were also expressed in the earlier review by Cytrynbaum, Ginath, Birdwell et al (1979). Such adaptations undermine the ability to collate psychometric evidence. The authors suggest further work is needed to determine test re-test reliability, concurrent, construct and predictive validity.

Despite these concerns, Hurn, Kneebone and Cropley (2006) concluded that "GAS appears to be a sound measure for use in physical rehabilitation settings with working age and older people" (p.756). They reported there is strong evidence for the reliability and validity of GAS. They further concluded there is a wealth of research supporting the sensitivity of GAS and reported support for using GAS to measure clinical change and suggest GAS is a more sensitive measure of outcome compared to a large number of measures.

Application of GAS

GAS allows for multiple individualised goals and the conversion to standardised scores which allows for direct comparisons between individuals or groups of patients. GAS also allows for calibration of degrees of success, recognising partial attainment of a goal, opposed to the 'all or nothing' approach of other goal-setting approaches.

The current author uses GAS for both therapeutic benefit and as part of the evaluation of the Pain Management Programme described earlier in Section B. There now follows a description of the process of completing a GAS guide, with a completed example. This next section is drawn from the author's clinical experience.

1. Selection of Goal Areas

The first task is to identify the problem areas by asking the patient how pain has impacted on their life and will help focus on priority goals. Usually 3 – 5 goal areas are identified, although generally a guide should have at least three goals (Smith and Cardillo 1994).

2. Follow up Time Selection

The time frame for goal attainment is set and is usually 3 months, although occasionally shorter periods are specified.

3. Select an Indicator for each Goal

This step involves selecting a criterium or measure of calibration so progress can be measured. If for example, the goal is to increase walking, then distance could be the indicator, or if reducing depression is the goal, then frequency of crying could be the indicator.

4. Specifying levels of Expected Outcomes

The five levels of outcome and relative scores are;

-2 = much less than expected
-1 = somewhat less than expected
0 = expected level of outcome
+1 = somewhat more than expected
+2 = much more than expected

Baseline or the current situation is scaled at -1. The next level described is the expected level of achievement within the time frame and given the scale of 0. The next two levels are further progress and scaled at +1 and +2. The final level is the least favourable outcome and scaled at -2 and considered deterioration from the baseline. This process is then repeated for the remaining goals. Goals can reflect different disciplines and be functional, physical or psychological; for example goals can be set to increase activities around the house, improve walking tolerance and showing less anger towards a partner by shouting less often. An example of a completed goal sheet is shown in Figure 16 and taken from the author's clinical practice.

Figure 16. Example of completed goal sheet.

Goal Sheet

Name **A. Jones**	**Therapist** **A. Lucas**	**Follow up date** **15 June 2006**		
	Goal 1 **Increase walking**	**Goal 2** **Improve function**	**Goal 3** **Socialising**	**Goal 4** **College course**
-2 Much less than expected	Can walk less than 20m unaided	Never wash and dress Independently	Sees friend less than 1 x weekly	Give up any hope of going to college
-1 Somewhat less than expected	Can walk 20-39m Unaided	Wash and dress 1-2 times a week independently	Sees friend 1 x weekly	Wants to investigate college course
0 Expected level of outcome	Can walk 40-59 m Unaided	As above 3-4 times weekly	Sees friend 2 x weekly	Visit college and collect prospectus
+1 Somewhat more than expected	Can walk 60-79m Unaided	As above 5-6 times weekly	Sees friend 3 x weekly	View prospectus and decide on course
+2 Much more than expected	Can walk 80m Unaided	Wash and dress every day Independently	Sees friend 4 x weekly	Arrange to start course and do it!

When the patient returns at the end of the specified time period, the guide or goal sheet is scored by asking the patient their level of achievement which is marked on the sheet. The level of achievement will correspond with the appropriate value between -2 and +2. The sum of these values is then used with the number of goals to determine the T-score described by Kiresuk and Sherman (1968), who suggest a score of 50 or better indicates the patient has met or exceeded their level of goal attainment. At the follow up procedure, the process of goal setting can be repeated and new goals set or familiar goals re-set.

Problems with Goal Setting

There may be problems in scoring the goal if there are gaps between the outcome levels. So for example, expected level is "walks 50 metres unaided" and the somewhat better level is "walks 70 metres unaided", then achieving a walking distance of 60 metres cannot be scored. Similarly, if indicators overlap such as expected level is 60 to 70 metres and somewhat better level is 70 to 80 metres and the patient achieves 70 metres, then scoring is problematic.

If goals have multi-dimensions then scoring will also be difficult. For example, when combining 2 indicators in the same goal, progress might be seen on only one indicator and thus difficult to score. Similarly, not completing all 5 levels of the goal will present problems when scoring. The vocabulary used on the goal sheet needs to be clear, concise and avoid ambiguity. If the goal lacks specificity, then scoring will be difficult.

Zaza, Stolee and Prkachin (1999) warn that a goal may be selected because it is easy to scale rather than the focus of the patient. Careful questioning and exploration with the patient should prevent such an occurrence. Zaza, Stolee and Prkachin (1999) also warn against setting trivial or meaningless goals simply to demonstrate "improved" outcomes and suggest peer reviews or audits to review the goal setting process. A further safeguard is provided by the GAS score formula. Using a sufficiently large number of patients, GAS scores are expected to have a normal distribution, with a mean of 50 and standard deviation of 10 (Kiresuk and Sherman 1968). A concern could be made that scores consistently higher than 50 may indicate the goals are not sufficiently challenging. It can be seen that a consequence could be the improvement of clinical skills by becoming more efficient at setting realistic and achievable goals. The current author delivers bi-annual in-service training to members of the therapy team to encourage good practise and efficient goal setting.

Application of GAS in Pain Management Settings

Chronic pain is a multi-dimensional problem, requiring multi-disciplinary assessment, treatment and evaluation. Zaza, Stolee and Prkachin (1999) argue that pain scales commonly used do not address these issues. Although there is a wealth of pain scales, many are specific to a particular diagnosis (e.g. Arthritis Impact Measurement Scale, Meenan 1982) or are uni-dimensional is so far as measuring one aspect of the pain experience such as pain intensity (e.g. visual analogue scales) or pain related disability (e.g. Pain Disability Index, Pollard 1984). Instruments that attempt to measure several dimensions of pain such as the McGill Pain Questionnaire (Melzack 1975) and the West Haven-Yale Multidimensional Pain Inventory (Kerns, Turk and Rudy 1985) are standardised or generic so have a predetermined number of items and a fixed range of response possibilities. These measures are typically used to determine patient status at assessment and detect change post treatment. Zaza, Stolee and Prkachin (1999) argue since these measures focus on discrete end points, they do not usually influence treatment planning or guide clinical practice, although in the current author's experience, this is not the case. Among the battery of measures used by this author is the Pain Self Efficacy Questionnaire (PSEQ) (Nicholas 1989), which purports to measure the degree of confidence a pain patient has to engage in different activities, such as social and occupation endeavours. The current author has found the seven items on the PSEQ may highlight particular problems and sequelae of chronic pain. For example, a patient scoring very low on the socialising item can help the pain management team to focus on particular strategies or skills to improve social contact. Therefore the current author cannot agree with Zaza, Stolee and Prkachin (1999) who argue that specific pain measures do not assist treatment planning, and are not subtle enough to capture individual patient concerns.

Zaza, Stolee and Prkachin (1999) further argue that individualised measures would allow respondents to highlight particular needs and help health professionals to identify and assess the consequences of pain important to the patient. Pain scales will reflect current intensity of particular domains but not focus attention on the problems associated with pain and suffering. It may be these problems that are maintaining pain and disability, through for example by disuse and sedentary behaviour.

It is appropriate then that these pain associated problems are the target for treatment and become the object of measurement.

Zaza, Stolee and Prkachin (1999) do not believe GAS should replace traditional pain measures, rather be used to fill the gap left by the inflexibility of such measures. They also advocate using traditional measures within the GAS process. For example, if cognitive restructuring is a focus of treatment, it might be useful to incorporate a standardised pain belief scale into the GAS sheet.

Zaza, Stolee and Prkachin (1999) discuss the need for patient-centered approaches to health care, particularly relevant to the multidimensional and individual nature of chronic pain. Patient centered approaches focus on the individual's illness experience (Morse and Johnson 1991) and consider the patient's feelings and fear about their health concern, consider the impact on function and their expectations regarding treatment and possible outcome. Stewart, Brown, Weston et al (1995) suggest the goal of patient centered approaches should be to understand the health concern from the patient's point of view and this method improves outcomes, patient satisfaction and compliance. An individual measure that reflects the patient's unique experience of their health concern may be more suited to patient-centered approaches.

The application of GAS to chronic pain settings has been described by Zaza, Stolee and Prkachin (1999) who used the clinical settings of chronic cancer pain, paediatric pain, non-malignant chronic pain and geriatric pain. The authors present four case histories of patients all suffering chronic pain but with diverse goals. For example, the oncology patient sees a 50 year old woman wanting to accept support and help from others. The paediatric pain case describes a 15 year old girl with persistent headache wanting to increase down-time or relaxing by watching television or reading. The non-malignant chronic pain sufferer was a 46 year old male factory worker, but not having worked for 18 months: an example of his goals is wanting to improve walking tolerance. The geriatric pain patient was an 84 year old widow with severe arthritis, who set a goal of wanting to increase activities of daily living and thus improve independence.

Williams and Stieg (1987) used a sample of 180 randomly selected patients to test validity and therapeutic efficacy of GAS. Of the 180 patients, over one half fell away to six month follow-up attrition leaving a sample of 76 patients. Of those patients not selected for GAS procedures, 129 returned for the six month follow-up and were used as a control group. The return rate to six month follow-up was not statistically different between the GAS and non GAS groups, so comparisons were considered legitimate.

The GAS group were all measured on admission and six month follow-up. In addition, seven other outcome measures were employed and administered at admission and follow-up. The functional measures comprised a walking test where patients were asked to continue walking until they requested to rest, up to a maximum of twenty minutes. "Uptime" was the self-reported average number of hours spent in a day walking, standing or sitting. Posture was also assessed and used as a functional measure. This measure of posture is rarely seen in the chronic pain literature and was determined by clinical observation of anterior and lateral photographs of the patient against a standard grid background. Sum scores on 33 items ranging from *3 = normal* to *0 = non-ambulatory or cannot stand.* So sum scores could range from 0 to 99. The McGill Pain Questionnaire (MPQ) (Melzack 1975) was used to assess pain quality and intensity, and contains three sub scales: *subjective pain rating*, *pain rating index* and *number of words chosen*. The *Pain Precipitating Activities Questionnaire* (PPA) (developed for this study) is a self-report checklist of 24 activities that may affect pain. A five point scale is used from *1 = pain decreases a lot* to *5 = pain increases a lot* and a total score is used for analysis.

Statistical analyses found that the only significant correlations between baseline GAS score and the other outcome measures was with posture and PPA. At six month follow-up the PPA relation fell away leaving only posture as the significant variable. Factor analysis of gain scores found a 2 factor solution; the first showed significant loadings of all three sub scales of the MPQ, and the second factor comprised moderate loadings of PPA, posture and GAS. It is worth noting that ambulation and uptime did not contribute to the model. The second factor which included GAS accounted for 25.6% of the explained covariance.

Concern should be expressed over interpreting these results considering the small sample number and low (but significant) correlations between gain scores. The authors counter this concern by noting that the GAS factor loading was 0.956 and what they called the "relatively high" percent explained by the factor when including GAS. They also argue that when GAS is dropped from the analysis, the factor "effectively" disappears, and so consider GAS as an essential contributor to the second factor. It is clear that factor 1 can be considered as 'pain experience' but labelling factor 2 is more problematic. Recalling factor 2 had three significant loadings of GAS, posture and PPA, the authors suggest a "functional" measure of treatment outcome. Undermining this suggestion is the evidence that walking and uptime did not load on either factor and did not even contribute a third factor to the model. The authors are left in the rather unconvincing position of describing this construct as a "measure of progress, improved coping skills, improved self esteem or possibly a general sense of well being".

Further analyses considered if participation in GAS was therapeutically useful. Comparisons at baseline found no significant differences between GAS and the control group. Williams and Stieg (1987) claim their study was the first to determine the average amount of improvement in patients' outcomes participating in GAS. The GAS group showed significant improvements compared to the control group on all outcome measures except for the total number of words chosen on the MPQ. Multivariate analysis of variance showed 24.7% of the improvement in outcome scores can be attributed to participation in GAS. The authors conclude that GAS can be recommended both as a measure of treatment outcome and as a therapeutic tool. They make four recommendations in applying GAS: first, weighted goal areas should be used; second, patients must be involved in goal setting; third, different members of staff should be used for treatment and administering GAS, and lastly, GAS should not be used in isolation but in conjunction with other appropriate measures.

Fisher and Hardie (2002) reported using GAS both as a therapeutic tool and an outcome measure in evaluating a pain management programme. One hundred and forty nine low back pain patients were enrolled on the study, although 112 participants completed the study.

Other outcome measures included in the study were the *McGill Pain Questionnaire* (Melzack 1975), a numerical rating scale for pain intensity (Jensen, Karoly and Braver 1986), *Oswestry Low Back Pain Disability Questionnaire* (Fairbank, Couper, Davies et al 1980), *General Health Questionnaire* (Goldberg 1978) and the *Pain and Impairment Relationship Scale* (Riley, Ahern and Follick 1988). Physical measures employed were sit to stand in 1 minute, number of stairs climbed in 1 minute and number of metres walked in 5 minutes. Patients completed all measures on admission, and GAS and physical activity measures repeated at discharge. All measures were repeated at 6 month follow up. A different therapist was used to score the goals from the one who helped set the goals.

No significant differences were found at assessment between the 37 patients who did not complete the programme and the completers. Significant improvements were found on GAS and physical measures at discharge. At 6 months follow up the GAS and sit to stand improvements were maintained. Pain description and disability were also improved. To test GAS as a measure of disability, correlations were examined with the standard measure of disability and a physical activity. Significant relations were reported between walking and GAS (0.47) and walking and disability (-0.29), the intercorrelation between GAS and disability was -0.31, explaining only about 10% of the shared variance. It is interesting to note that while changes in pain intensity and pain related cognitions were related to changes in disability, this was not true of GAS. At the end of the 3 week programme, GAS scores showed progress on most goals, with the mean score of 49 close to the expected score of 50 (Kiresuk, Smith and Cardillo 1994). Further improvement on the GAS scores was achieved at 6 month follow up. It was found that GAS was able to detect progress on personally valued goals but this was not reflected in the smaller improvement of standard measure of disability. Fisher and Hardie (2002) recommend that GAS can be used both to first evaluate pain management outcomes and secondly, to help generalise programme activities into relevant real life applications.

The evidence for applying GAS in pain management settings is limited (Williams and Stieg 1987, Zaza, Stolee and Prkachin 1999, Fisher and Hardie 2002) but the findings from those studies support its use and suggest it could be a useful technology for enhancing therapeutic benefit and, evaluating a pain management intervention.

Goal Attainment Scaling - Current Use and Developments

Since the extensive review of Cytrynbaum, Ginath, Birdwell et al (1979), extensive support for GAS has waned based on the evidence of published literature. One could argue that GAS was at its most popular during the 1970s. Turnbull (1998) states "it (GAS) is rarely used today", although a review of the literature does not support this position and in fact there follows a review highlighting how GAS is currently being applied. Turnbull (1998) suggests the major disadvantage of GAS is not technological or methodological but cultural, and because it relies on clinical freedom and judgement is treated with suspicion by managers. In the twenty five years since the Cytrynbaum, Ginath, Birdwell et al (1979) review, GAS still has its supporters as shown in the recent review by Hurn, Kneebone and Cropley (2006), and there now follows a brief review of more recent studies.

Shefler, Canetti and Wiseman (2001) used GAS to assess brief psychotherapy on a sample of 33 patients with mental health problems. Mean inter-rater reliability was reported to be 0.88 and evidence was also presented supporting convergent, content and concurrent validity. A variation on classical GAS was the construction of scales along five pre-selected dimensions of severity of symptoms, self-esteem, romantic relationships, same sex friendships and work performance. The authors claimed this was the first attempt to use pre-selected dimensions to assess change scores thus standardising GAS but searching the literature revealed an earlier study by Becker, Stuifbergen, Rogers et al (2000) who used this methodology (discussed below). Internal consistency was demonstrated on the GAS composite score and the subscales, with correlations reported to range from 0.61 to 0.78. Shefler, Canetti and Wiseman (2001) suggest psychometric properties of GAS will improve if methodological requirements are adhered to, such as using judges independent of the intervention. The authors recommend pre-selecting dimensions relevant to the particular patient population and type of treatment offered.

Rushton and Miller (2001) presented findings on the psychometric properties of GAS using 10 patients with lower extremity amputations who attended an intensive inpatient rehabilitation programme.

To establish construct validity, a priori hypotheses about direction of relations between GAS and two standardised outcome measures were set. Results showed moderate coefficients of 0.44 and 0.35. Inter-rater reliability was reported to be 0.67 for GAS scores. A clear weakness of this study and calls into question the interpretation of results was no formal training or practice in GAS setting was offered prior to starting the study. Despite this weakness, the authors also reported GAS was sensitive to detecting clinically important change and recommend its use in the rehabilitation of patients with lower limb amputations.

Becker, Stuifbergen, Rogers et al (2000) undertook a pilot study using 7 female patients with multiple sclerosis. GAS was used to assess an intervention study aimed at enhancing health promotion. Due to the small sample, no attempt was made to use inferential statistics to determine statistical significance. The intervention comprised education sessions, goal setting and twice weekly phone calls to encourage progress, with follow ups at 6 weeks, three and six months. As mentioned earlier, goals were set along five pre-determined dimensions that reflected core concerns for patients with multiple sclerosis: lifestyle adjustment, physical activity, stress management, nutrition and health care responsibility. Overall the results were positive. All the patients made progress on the stress management, nutrition and health care responsibility goals. There was some attenuation of gains at three and six months, although GAS scores still remained above pre-intervention levels in all five domains. This study did not use a collaborative approach with the patients when goal setting and goals were prepared by a single therapist, introducing the possibility of systematic bias and violating the original GAS model. The authors believe GAS may be particularly appropriate for evaluating interventions focussed on lifestyle changes associated with health promotion, disease prevention and chronic disease management.

Mate-Kole, Danquah, Twum et al (1999) used GAS to evaluate three behaviour interventions in intellectually impaired individuals. Fifteen patients were randomly assigned to one of three conditions to improve self care behaviours. GAS was used to calculate change scores and was found to discriminate between the interventions. The authors also found GAS was useful for communicating concise information and concrete progress to patients, family and health professionals.

The authors warn that using group comparisons will mask individual progress and suggest single subject data more accurately tracks improvement. Although the random allocation to treatment conditions adheres to the original GAS model, the study lacks details on GAS training.

Two more recent papers provide further support for applying GAS in older patients and those with intellectual disabilities. Kloseck (2007) used GAS to measure progress and outcomes in community health promotion within a large sample (n = 2500) of older patients (mean age 76). Kloseck describes GAS as a "participatory, flexible evaluation approach that involves community members, research partners and other stakeholders in the evaluation process" (p.17). This paper did not contribute to the psychometric literature on GAS, although the application and implementation stayed close to the original description of GAS (Kiresuk & Sherman 1968).

Jones, Walley and Leech et al (2006) describe using GAS to evaluate a 16 week needs led exercise programme for people with severe and profound intellectual disabilities. Goals were set to enhance the physical well-being of participants. GAS was used to evaluate the positive effects on behaviour, health and physical competence. The authors presented evidence for the inter-rater reliability and concurrent and face validity of GAS. Caution should be taken when drawing conclusions as the sample size was small (n=22), although the authors conclude GAS is a "reliable and valid method for the evaluation of needs-led service provision" (p.332).

GAS has also been reported in healthy samples. Mellalieu, Hanton and O'Brian (2006) used GAS to evaluate rugby performance and reported it to be an effective technique for enhancing selected behaviours. No discussion on psychometric properties was offered and the sample was limited to 5 participants. Carter and Clark (2005) reported on using GAS to evaluate the quality of sleep in individuals who have a family member in an intensive care unit. The authors highlight the health risks of family caregivers and developed an intervention to help with achieving good sleep hygiene, including reducing stimuli, promoting relaxation and adopting adaptive bedtime routines. No methodological concerns were described nor comments on how GAS performed. GAS was also utilised to improve selected basketball skills in a single subject design with four participants (Swain & Jones 1995).

Following the intervention 3 out of 4 participants showed consistent improvements in the targeted areas of performance. The authors suggest that GAS demonstrates ecological validity.

Summary

The multi-dimensional nature of chronic pain needs a flexible individualised measurement tool that focuses on patient priorities. It could be argued that GAS meets the criteria for such an instrument. GAS provides meaningful information, is relatively easy to use and not requiring expensive technology. GAS has been shown to be useful in both programme evaluation and clinical and therapeutic settings.

Zaza, Stolee and Prkachin (1999) describe how GAS can be useful to fund holders who want evidence of effectiveness. GAS can be used to monitor the quality of care in a multi-disciplinary pain programme. Treatment goals will greatly vary from patient to patient yet be underpinned by an overall treatment model. GAS can provide the flexible assessment protocol needed to determine overall impact of the programme as a whole.

In summary, it could be argued in the twenty five years since the first major critical review by Cyntrynbaum, Ginath, Birdwell et al (1979) the evidence supporting GAS is still inconsistent, although the later review by Hurn, Kneebone and Cropley (2006) contributed to the psychometric literature. It is clear that later studies have developed the original model to fit with local concerns and interests. This section has described the historical development and conceptual back ground of GAS. The clinical application of GAS and its relevance to pain management settings proceeds a review of GAS in wider settings (Jones, Walley, Leech et al 2006, Melanie, Hanton and O'Brian 2006, Carter and Clark 2005). It would appear that GAS is still a popular technology utilised in such diverse settings as evaluating brief psychotherapy (Shefler, Canetti and Wiseman 2001), rehabilitation of amputees (Rushton and Miller 2001), health promotion in patients with multiple sclerosis (Becker, Stuifbergen, Rogers et al 2000) and community health promotion (Kloseck 2007).

This section concludes by arguing that GAS is a flexible and sensitive tool that lends itself to use in pain management settings.

Chapter 9

Conclusions

Chronic pain management has made significant progress since its early foundations in the work of Wilbert Fordyce and John Bonica in Seattle during the 1960's. The multi-faceted nature of chronic pain should be reflected in best practice by multi-disciplinary input. The British Pain Society recently published guidelines on best practice for pain management programmes and clearly stated the need for psychology input. Pain Management has traditionally been delivered by Clinical Psychologists. This work describes the role of a Health Psychologist in pain management settings.

There is no reported linear relationship between pathology and disability in chronic pain patients. When medical investigations are unable to explain pain complaint and disability, there is a need to use broader technologies. My main interest is reducing pain related disability and improving quality of life. It stems from early concerns with the mismanagement of chronic pain sufferers. The dominant medical model of care fails many pain patients. Repeated medical investigations and interventions can have iatrogenic consequences leaving the patient lost in the medical and benefits system.

Pain related disability has to be conceptualised and explained using a biopsychosocial approach and self-efficacy forms a significant element of this approach. Self-efficacy has become an important consideration in health behaviour theories and is now an "essential component in all major models" (Schwarzer & Fuchs 1999 p. 174). Self-efficacy is gaining increased interest from pain researchers because of its central role in helping patients move from the medical to the self directed model of pain management. Main and Booker (2000) suggest self-efficacy is one of the three clinically most important constructs in pain patients. Further, self-efficacy is now considered a key mediator of change in cognitive behavioural therapy in chronic pain settings (Morley and Keefe 2007). Section B of this work makes a significant contribution to the literature on the psychometric evaluation and properties of the Pain Self-Efficacy Questionnaire. It provides support for the validity, reliability and clinical sensitivity of the measure, and thus its use as an indicator of the benefit to be gained from a Pain Management Programme based on cognitive behavioural therapy principles.

Additional chapters describe developing the role of a Health Psychologist within an applied clinical setting. Health Psychology as a distinct discipline will increasingly be utilised in applied settings and a model of theory driven practice and consultancy is described.

Further chapters also contribute to the literature on Goal Attainment Scaling, a technology that allows for 'capture' of patient's actual achievement of personally valued activities that can be missed by standardised questionnaires. The critical review of the published literature with a focus on pain management settings concludes that Goal Attainment Scaling is a useful outcome measure and therapeutic tool, arguing for greater utilisation in pain management settings.

Chronic pain is not only suffered by the individual and their family. The economic loss to industry and demands to the welfare system mean concerted efforts must be made to understand and research into reducing the many costs of chronic pain. It is hoped this work contributes to those efforts.

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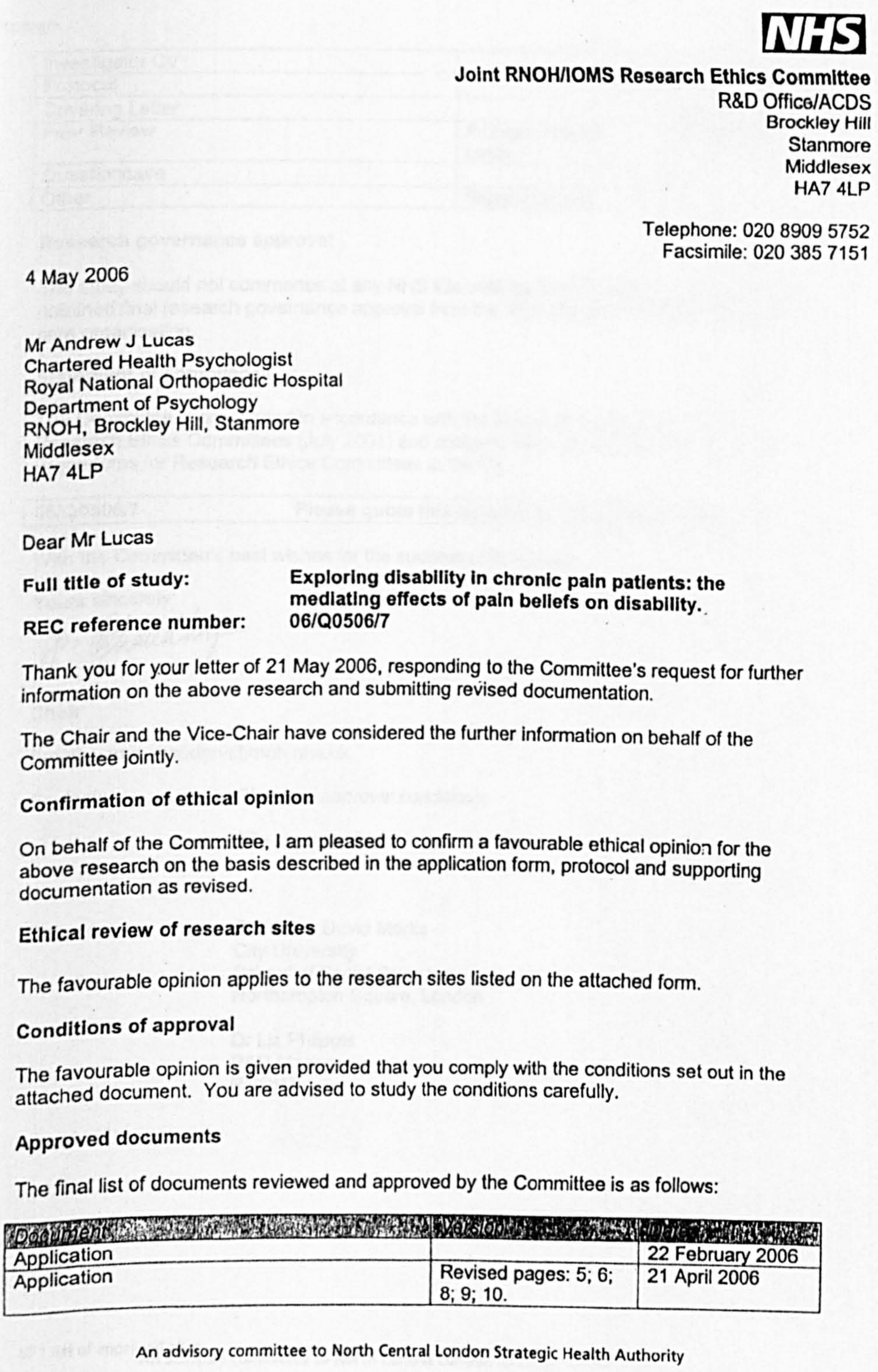
Appendices

1. Approval from Ethics Committee



NHS

Joint RNOH/IOMS Research Ethics Committee
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4 May 2006

Mr Andrew J Lucas
Chartered Health Psychologist
Royal National Orthopaedic Hospital
Department of Psychology
RNOH, Brockley Hill, Stanmore
Middlesex
HA7 4LP

Dear Mr Lucas

Full title of study: **Exploring disability in chronic pain patients: the mediating effects of pain beliefs on disability.**
REC reference number: **06/Q0506/7**

Thank you for your letter of 21 May 2006, responding to the Committee's request for further information on the above research and submitting revised documentation.

The Chair and the Vice-Chair have considered the further information on behalf of the Committee jointly.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Ethical review of research sites

The favourable opinion applies to the research sites listed on the attached form.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Application		22 February 2006
Application	Revised pages: 5; 6; 8; 9; 10.	21 April 2006

Investigator CV		
Protocol		
Covering Letter		21 April 2006
Peer Review	Professor Marks' Letter	12 April 2006
Questionnaire		
Other	Supervisor's CV	

Research governance approval

The study should not commence at any NHS site until the local Principal Investigator has obtained final research governance approval from the R&D Department for the relevant NHS care organisation.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

06/Q0506/7	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project

Yours sincerely

pp. Chaudhry

Chair

Email: uzma.chaudhry@rnoh.nhs.uk

Enclosures: *Standard approval conditions*

Site approval form

Copy to:

Professor David Marks
City University
School of Social Sciences
Northampton Square, London

Dr Liz Philpots
R&D Manager
RNOHT

SF1 list of approved sites

An advisory committee to North Central London Strategic Health Authority

Joint RNOH/IOMS Research Ethics Committee
LIST OF SITES WITH A FAVOURABLE ETHICAL OPINION

For all studies requiring site-specific assessment, this form is issued by the main REC to the Chief Investigator and sponsor with the favourable opinion letter and following subsequent notifications from site assessors. For issue 2 onwards, all sites with a favourable opinion are listed, adding the new sites approved.

REC reference number:	06/Q0506/7	**Issue number:**	1	**Date of issue:**	4 May 2006

Chief Investigator:	Mr Andrew J Lucas
Full title of study:	Exploring disability in chronic pain patients: the mediating effects of pain beliefs on disability.

This study was given a favourable ethical opinion by Joint RNOH/IOMS Research Ethics Committee on 02 May 2006. The favourable opinion is extended to each of the sites listed below. The research may commence at each NHS site when management approval from the relevant NHS care organisation has been confirmed.

Principal Investigator	*Post*	*Research site*	*Site assessor*	*Date of favourable opinion for this site*	*Notes (1)*
Mr Andrew J Lucas	Chartered Health Psychologist	RNOHT, Stanmore, Middlesex HA7 4LP.	Joint RNOH/IOMS Research Ethics Committee	4/05/2006	

Approved by the Chair on behalf of the REC:

Chaudhry .... (Signature of ~~Chair~~/Administrator)
(delete as applicable)

Ms Uzma Chaudhry .... (Name)

2. Pain Self Efficacy Questionnaire

S-E QUESTIONNAIRE

NAME: **DATE:**

Please rate how confident you are that you can do the following things at present, despite the pain. To answer circle <u>one</u> of the **numbers on the scale under each item, where 0 = Not at all confident and 6 = Completely confident.**

FOR EXAMPLE

0 1 2 3 4 5 6

Not at
All
Confident

Completely
Confident

Remember, this questionnaire is not asking whether or not you have been doing these things, but rather, **how confident you are that you can do them** at the present <u>despite the pain.</u>

1. I can still enjoy things, despite the pain.

0 1 2 3 4 5 6

Not at
All
Confident

Completely
Confident

2. I can still do most of the household chores (e.g. tidying up, washing dishes etc.) despite the pain.

0 1 2 3 4 5 6

Not at
All
Confident

Completely
Confident

3. I can socialise with my friends or family members as often as I used to, despite the pain.

0 1 2 3 4 5 6

Not at
All
Confident

Completely
Confident

4. I can cope with my pain in most situations.

0 1 2 3 4 5 6

Not at
All
Confident

Completely
Confident

5. I can do some sort of work, despite the pain ("Work includes housework, paid or unpaid work).

0 1 2 3 4 5 6

Not at
All
Confident

Completely
Confident

6. I can still do many of the things I enjoy doing, such as hobbies or leisure activities, despite the pain.

0 1 2 3 4 5 6

Not at
All
Confident

Completely
Confident

7. I can cope with my pain without medication.

0 1 2 3 4 5 6

Not at
All
Confident

Completely
Confident

8. I can still accomplish most of my goals in life, despite the pain.

0 1 2 3 4 5 6

Not at
All
Confident

Completely
Confident

9. I can still live a normal lifestyle despite the pain.

0 1 2 3 4 5 6

Not at
All
Confident

Completely
Confident

10. I can gradually become more active, despite the pain.

0 1 2 3 4 5 6

Not at
All
Confident

Completely
Confident

3. Short Form McGill Pain Questionnaire

Short-form McGill Pain Questionnaire

Name______________________ **Date**__________________

Please place a tick against each word in the column most appropriate to your level of pain at the present time

	None	Mild	Moderate	Severe
Throbbing				
Shooting				
Stabbing				
Sharp				
Cramping				
Gnawing				
Hot-burning				
Aching				
Heavy				
Tender				
Splitting				
Tiring-exhausting				
Sickening				
Fearful				
Punishing-cruel				

HOW STRONG IS YOUR PAIN?

Please mark along this line the number that represents how strong your pain is at the moment.

0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
No Pain										**Worst pain imaginable**

4. Pain Disability Index

Pain Disability Index

The rating scales below are designed to help us know how much of your pain is preventing you from doing what you normally do, or doing it as well as you normally would. Respond to each category by indicating the overall impact of pain in your life, not just when the pain is at its worst.

For each of the seven categories listed, please circle the number on the scale which describes the level of disability you usually experience. A score of 0 means no disability at all and a score of 10 means that all activities in that area have been totally disrupted by your pain.

Respond to each category by indicating the overall impact of your pain in your life, not just when the pain is at its worst.

1. Family/home responsibilities

This category refers to activities related to the home or family. It includes chores performed around the house (e.g. *gardening,* D.I.Y., *maintenance,* housework, decorating) and errands or favours for other family members (e.g. driving the *children to school).*

0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
no disability										**total disability**

2. Recreation

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

0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
no disability										**total disability**

3. Social activity

This category refers to things that you do with friends and acquaintances other than family members. It includes parties, going to the cinema or theatres, concerts, eating out and other social functions.

0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
no disability										**total disability**

4. Occupation

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

0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
no disability										**total disability**

5. Sexual behaviour

This category refers to the frequency and quality of your sex life.

0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
no disability										**total disability**

6. Self care

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

0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
no disability										**total disability**

7. Life support activity

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

0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
no disability										**total disability**

5. Hospital Anxiety and Depression Scale

Date:

HAD SCALE

Doctors are aware that emotions play an important part in most illnesses. If your doctor knows about these feelings he will be able to help you more. This questionnaire is designed to help your doctor to know how you feel. Read each item and place a firm tick in the box opposite the reply which comes closest to how you have been feeling in the past week. Don't take too long over your replies: your immediate reaction to each item will probably be more accurate than a long thought-out response.

Tick only one box in each section

1. I feel tense or 'wound up':
Most of the time .... ☐
A lot of the time .... ☐
Time to time, occasionally...... ☐
Not at all .... ☐
[redacted]

2. I feel as if I am slowed down
Nearly all the time............. ☐
Very often...................... ☐
Sometimes..................... ☐
Not at all...................... ☐
[redacted]

3. I still enjoy the things I used to enjoy:
Definitely as much................ ☐
Not quite so much................ ☐
Only a little......................... ☐
Hardly at all......................... ☐
[redacted]

4. I get a sort of frightened feeling like 'butterflies in the stomach:
Not at all .... ☐
Occasionally..................... ☐
Quite often....................... ☐
Very often...................... ☐
[redacted]

5. I get a sort of frightened feeling as if something awful is about to happen:
Very definitely and quite badly... ☐
Yes but not too badly............... ☐
A little but it doesn't worry me... ☐
Not at all............................. ☐
[redacted]

6. I have lost interest in my appearance:
Definitely .... ☐
I don't take so much care as I should ☐
I may not take quite as much care.... ☐
I take just as much care as ever....... ☐
[redacted]

7. I can laugh and see the funny side of things:
As much as I always could .... ☐
Not quite so much now .... ☐
Definitely not so much now .... ☐
Not at all .... ☐
[redacted]

8. I feel restless as if I have to be on the move:
Very much indeed .... ☐
Quite a lot .... ☐
Not very much .... ☐
Not at all .... ☐
[redacted]

9. Worrying thoughts go through my mind:
A great deal of the time .... ☐
A lot of the time .... ☐
From time to time but not too often ☐
Only occasionally .... ☐
[redacted]

10. I look forward with enjoyment to things:
As much as ever I did .... ☐
Rather less than I used to .... ☐
Definitely less than I used to .... ☐
Hardly at all .... ☐
[redacted]

11. I feel cheerful:
Not at all .... ☐
Not often .... ☐
Sometimes .... ☐
Most of the time .... ☐
[redacted]

12. I get sudden feelings of panic:
Very often indeed .... ☐
Quite often .... ☐
Not very often .... ☐
Not at all .... ☐
[redacted]

13. I can sit at ease and feel relaxed:
Definitely .... ☐
Usually .... ☐
Not often .... ☐
Not at all .... ☐
[redacted]

14. I can enjoy a good book or radio or TV programme:
Often .... ☐
Sometimes .... ☐
Not often .... ☐
Very seldom .... ☐
[redacted]

6. General Health Questionnaire 12

GENERAL HEALTH QUESTIONNAIRE (GHQ 12)

Please read this carefully

We should like to know if you have had any medical complaints and how your health has been in general, over the last few weeks. Please answer ALL the questions simply by underlining the answer which you think most nearly applies to you. Remember that we want to know about present and recent complaints, not those that you had in the past.
It is important that you try to answer ALL the questions.
Thank you very much for your co-operation.

Have you recently ...

1. been able to concentrate on whatever you're doing?	Better that usual	Same as usual	Less than usual	Much less than usual
2. lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
3. felt that you are playing a useful part in things?	More so that usual	Same as usual	Less useful than usual	Much less useful
4. felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less than usual
5. felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual
6. felt you couldn't overcome your difficulties?	Not at all	No more than usual	Rather more than usual	Much more than usual
7. Been able to enjoy your normal day to day activities?	More so than usual	Same as usual	Less so than usual	Much less than usual
8. been able to face up to your problems?	More so than usual	Same as usual	Less so than usual	Much less able
9. been feeling unhappy and depressed?	Not at all	No more than usual	Rather more than usual	Much more than usual
10. been losing confidence in yourself?	Not at all	No more than usual	Rather more than usual	Much more than usual
11. been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
12. been feeling reasonably happy, all things considered?	More so than usual	About same as usual	Less so than usual	Much less than usual

7. Active Back Programme Timetable

Royal National Orthopaedic Hospital – **Active Back Programme** Group 134(07) Week 1 – 02/07/07

Monday	Tuesday	Wednesday	Thursday	Friday
9.30 – 10.00 PT/OT/TT Introduction to the ABP Seminar Room	9.00 – 9.30 PT/TT Intro to Stretch Sports Hall	9.00 – 9.25 PT/TT Stretch Sports Hall	9.00 – 9.25 PT/TT Stretch Sports Hall	9.00 – 9.55 PT/TT Stretch & Exercise Sports Hall
10.00–11.00 Gym Induction Grp A ANTC gym	9.30 – 10.35 PT/TT ANTC Gym	9.30 – 10.10 PT/TT ANTC Gym	9.30 – 10.10 PT/TT ANTC Gym	10.00 – 10.55 PT/TT Posture Seminar Room
11.00-12.00 Gym Induction Grp B ANTC gym	10.40 – 11.05 Tea	10.15 – 10.30 Tea	10.15 – 10.40 Tea	11.00 – 11.25 Tea
12.00-1.30 Lunch	11.10 – 12.10 HP Learning How To Learn Resource Room	10.35 – 11.25 OTT / TT Functional Activity OT Workshop	10.45 – 11.45 OTT/TT Functional Activity OT Workshop	11.30 – 12.15 HP Stress & Anxiety Seminar Room
1.30-2.30 PT Functional Anatomy of Spine Seminar Room	12.15 – 12.55 PT/TT Exercise Amp gym	11.30 – 12.25 HP Understanding Pain Seminar Room	11.50 – 12.40 Lunch	12.20 – 1.00 PT/TT ANTC Gym
2.35-2.55 Tea	1.00 – 1.55 Lunch	12.30 – 1.20 Lunch	12.45 – 1.35 OT Postural Management OT Kitchen	Collect seating from OT HOME
3.00-4.00 OT Introduction to Relaxation Seminar Room	2.00-2.40 OTT/ TT Introduction to Functional Activity OT Workshop	1.25 – 1.55 TT Why Exercise? Seminar Room	1.40 – 2.40 OT Goal Setting Short Term Goals OT Kitchen	
4.00 – 4.30 PT/OT Pacing Seminar Room	2.45-3.05 Tea	2.00-2.45 PT/TT Pool Exercise	2.45-3.30 PT/TT Pool Exercise	
	3.10 – 4.05 PT Healing, Hurt & Harm Seminar Room	2.50-3.10 Tea	3.35 – 3.55 Tea	
	4.10 – 4.40 PT/OT/TT Video Assessment Amp Gym	3.15 – 4.00 PT/TT Sport Sports Hall	4.00 – 4.40 TT Relaxation Amp Gym	
		4.05 – 4.40 OT Relaxation Amp Gym		
EVENING READING Read guide to stretching Read relaxation information	EVENING READING Review handouts received today	EVENING READING Complete workshop 1: Relaxation	EVENING READING Read goal setting sheet Complete weekend goals	WEEKEND READING Consider sitting/standing tolerances

Key: PT – Physiotherapist OT – Occupational Therapist TT – Therapy Technician OTT – Occupational Therapy Technician HP – Health Psychologist

Royal National Orthopaedic Hospital – **Active Back Programme** Group 134(07) Week 2 – 09/07/07

Monday	Tuesday	Wednesday	Thursday	Friday
9.00 – 9.30 PT/OT/TT Welcome Back Seminar Room	9.00 – 9.25 PT/TT Stretch Sports Hall	9.00 – 9.50 PT/TT Stretch & Exercise Sports Hall	9.00 – 9.25 PT/TT Stretch Sports Hall	9.00 – 9.50 PT/TT Stretch & Gym Ball (Part I) Sports Hall
9.35 – 9.55 PT/TT Stretch Physio Gym	9.30 – 10.15 PT/TT ANTC Gym	9.55 – 10.55 OTT/TT Functional Activity OT Workshop	9.30 – 10.15 PT/TT ANTC Gym	9.55 – 10.55 TT/OTT Functional Activity OT Workshop
10.00 – 11.00 HP Assertiveness Seminar Room	10.20 – 10.40 Tea	11.00 – 11.15 Tea	10.20 – 11.20 OTT/TT Functional Activity OT Workshop	11.15-11.45 PT/OT/TT Discussion Group on Change Seminar Room
11.05 – 11.25 Tea	10.45 – 11.35 PT Fitness Seminar Room	11.20 – 12.00 PT/TT ANTC Gym	11.25 – 11.55 Tea	11.50 – 12. 30 OT Weekend Goals/GAS
11.30 – 12.10 OT Lifing & Handling Seminar Room	11.40 – 12.55 HP Mood Management Resource Room	12.05 – 1.05 Lunch	12.00 – 12.40 OT Ergonomics OT Dept	Collect Seating HOME
12.15 – 1.15 Lunch	1.00 – 1.55 Lunch	1.10 – 1.55 CONS. Drugs & Medication Resource Room	12.45 – 1.35 Lunch	
1.20 – 2.05 PT/OT Problem Solving Seminar Room	2.00 – 2.55 PT/TT/OT Individual Catch Up With Team Members Seminar Room	2.00 – 2.45 PT/TT Pool Exercise	1.40 – 2.00 PT/TT Exercise Sports Hall	
2.10 – 3.00 PT/TT Pool Exercise	3.00 – 3.15 Tea	2.50 – 3.10 Tea	2.00 – 2.40 PT/OT/TT Lifting & Handling/Prob solving Sports Hall	
3.05 – 3.20 Tea	3.20– 4.00 PT/TT Exercise / Sport Sports Hall	3.15 – 4.00 PT/TT Sport Sports Hall	2.45 – 3.30 PT/TT Pool Exercise	
3.25 – 4.00 PT/TT Exercise Sports Hall	4.05 – 4.40 TT Relaxation Amp Gym	4.05 – 4.40 OT Relaxation Amp Gym	3.40 – 4.05 Tea	
4.05 – 4.40 OT Valpar OT Kitchen			4.10 – 4.40 TT Relaxation Amp Gym	
EVENING READING Complete worksheet 2: Problem Solving	EVENING READING Review handouts received today	EVENING READING Complete worksheet 3: Coping Strategies	EVENING READING Complete worksheet 4: Making Changes	WEEKEND READING Complete worksheet 5: Ergonomics

Key: PT – Physiotherapist OT – Occupational Therapist TT – Therapy Technician OTT – Occupational Therapy Technician HP – Health Psychologist

Royal National Orthopaedic Hospital – Active Back Programme Group 134(07) Week 3 – 16/07/07

Monday	Tuesday	Wednesday	Thursday	Friday
9.00 – 9.25 PT/OT/TT Weekend Report Seminar Room	9.00 – 9.20 PT/TT Stretch Sports Hall	9.00 – 9.50 PT/TT Stretch & Exercise Sports Hall	9.00 – 9.25 PT/TT Stretch Sports Hall	
9.30 – 9.50 PT/TT Stretch Physio Gym	9.25 – 10.20 PT/TT ANTC Gym	9.55 – 10.55 TT/OTT Functional Activity OT Workshop	9.30 – 10.30 PT/OT Quiz Kings fund room	
9.55 – 10.50 PT/TT ANTC Gym	10.25 – 11.10 HP Family & Friends Resource Room	11.00 – 11.15 Tea	10.35 – 11.05 OTT/TT Functional Activity OT Workshop	
10.55 – 11.15 Tea	11.10 – 11.40 Tea	11.20– 12.00 PT/TT ANTC Gym	11.10 – 11.30 Tea	
11.20 – 12.20 TT/OTT Functional Activity OT Workshop	11.40 – 12.40 HP Maintenance Strategies Resource Room	12.05 – 1.00 Lunch	11.35 – 12.25 PT/OT/TT Group/Video Feedback Physio Gym	
12.25 – 1.10 Lunch	12.45 – 1.50 Lunch	1.05 – 1.55 PT/OT/TT Catch-up time for ABP Admin/paperwork Seminar Room	12.30 PT/OT/TT SWT/Final Assessment Physio Gym	
1.15 – 1.55 PT Foiling a Flare-up Seminar Room	1.55 – 2.55 PT/TT Gym Ball (Part II) Sports Hall	2.00 – 2.45 PT/TT Pool Exercise		
2.00 – 2.45 PT/TT Pool Exercise	3.00 – 3.20 Tea	2.50 – 3.10 Tea		
2.50 – 3.10 Tea	3.25– 4.00 PT/TT Exercise / Sport Sports Hall	3.15 – 3.55 PT/TT Sport Sports Hall		
3.15 – 4.15 PT/OT/TT Lifting & Handling/OT Circuit OT Dept	4.05 – 4.40 OT Relaxation Amp Gym	4.00 – 4.40 PT/OT/TT Video Assessment		
4.15 – 4.30 PT/OT Discharge Planning/Gas OT Dept				
EVENING READING Complete worksheet 6: Pacing	EVENING READING Complete worksheet 7: Family and Friends	EVENING READING Ensure goals for 6 week F/U and Setback plan are completed		

Key: PT – Physiotherapist OT – Occupational Therapist TT – Therapy Technician OTT – Occupational Therapy Technician HP – Health Psychologist

8. Learning to Change

Session 1

LEARNING TO CHANGE

RNOH NHS TRUST
ACTIVE BACK PROGRAMME

A.J. Lucas
Chartered Health Psychologist

Attending the ABP suggests you want to change, but *what* do you want to change? It may not be possible to take away the pain, but what changes in other areas would make a difference to your quality of life? Being able to return to work or be more active socially. If for example, your goal is to return to work, ask yourself "*what needs to change in order for me to return to work*"?

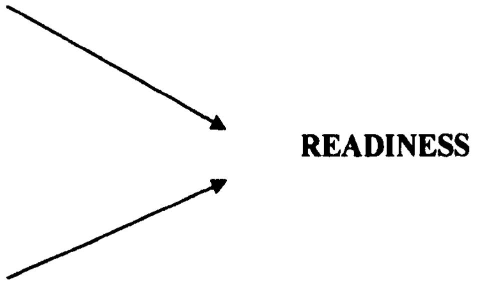
For some people, change is easy while others find it much harder. How have you changed over the years? Some behaviours and ways of thinking can become habits and as we all know some habits are hard to break. You might be unaware how you behave. Think about your habits; for example when your pain is very bad (flare up), how do you react? Do you lie down, try to ignore it, take medication, try to distract yourself?

Ready to Change?

The ingredients of readiness to change.

Importance (Why should I change?)

(personal values and expectations of
the importance of change)



Confidence (How will I do it?)
(self-efficacy)

Importance **Why?**	**Confidence** **How? What?**	**Readiness** **When?**
Is it worthwhile?	Can I?	Should I do it now?
Why should I?	How will I do it?	What about other priorities?
How will I benefit?	How will I cope with x, y and z?	
What will change?	Will I succeed if…?	
At what cost?	What change…?	
Do I really want to?		
Will it make a difference?		

Readiness to CHANGE is influenced by IMPORTANCE, if a change feels important to you and you have the CONFIDENCE to achieve it you will feel more ready to have a go and more likely to succeed.

Role of **Resistance** (observable patterns of behaviour, such as denial, arguing, putting up objections, showing reluctance to engage in conversation)

The philosophy of the ABP is self management. We hope that during your stay, you start to learn new skills and ways of coping in order to improve your quality of life. Some people associate learning just with school or college, but learning can happen every day and in many different ways.

Peter Honey and Alan Mumford (educational psychologists) have proposed this system to describe how we learn;

Experiencing → Reviewing → Concluding → Planning

Having an experience

↗ ↘

Planning the next step Review the experience

↖ ↙

Conclude from the experience

This system does <u>not</u> suggest that all people learn the same way. Some people learn by repetition or discussion with friends / colleagues. Consider ***how*** you learn a new skill or behaviour. Are you receptive and able to change, ie learning? What obstacles can you identify that would prevent change?

The above system can be further described;

Some learn by ***doing***

↗ ↘

Some learn by ***testing / challenging*** Some learn by ***watching and thinking***

↖ ↙

Some learn by the ***theory*** of it

The ABP Team will encourage you to change but you are the most important factor in whether change is possible or not.

Session 2

UNDERSTANDING PAIN

RNOH NHS TRUST
ACTIVE BACK PROGRAMME

A.J. Lucas
Chartered Health Psychologist

Prologue

"Wouldn't it be wonderful never to experience pain", many people have thought when they or others they have known were suffering. Pain hurts, and people typically dislike it and try to avoid it. But being able to sense pain is critical to our survival – without it, how would we know when we are injured? We could have a sprained ankle or an ulcer, for instance, without realizing it, and not seek treatment. How would we know we are about to be injured, such as when we approach a hot flame without seeing it? Pain serves as a signal to take protective action.

Are there people who do not feel pain? Yes – several disorders can reduce or eliminate the ability to sense pain. People with a condition called congenital insensitivity to pain, which is present from birth, may report only a "tingling" or "itching" sensation when seriously injured. A young woman with this disorder –

> Seemed normal in every way, except that she had never felt pain. As a child she had bitten off the tip of her tongue while chewing food, and had suffered third degree burns after kneeling on a hot radiator to look out of a window. When examined by a psychologist she reported that she did not feel pain when noxious stimuli were presented. She felt no pain when parts of her body were subjected to strong electric shock, to hot water at temperatures that usually produce reports of burning pain, or to a prolonged ice bath. Equally astonishing was the fact that she showed no changes in blood pressure, heart rate, or respiration when these stimuli were presented. Furthermore, she could not remember ever sneezing or coughing, the gag reflex could be elicited only with great difficulty, and the cornea reflexes (to protect the eyes) were absent. (Melzack, quoted in Bakal, 1979, page 141).

This disorder contributed to her death at the age of 29. People with congenital insensitivity to pain often die young because of injuries or illnesses, such as acute appendicitis, go unnoticed (Chapman, 1984; Manfredi et al. 1981).

Health Psychologists study pain because it influences whether individuals seek and comply with medical treatment and because being in pain can be very stressful, particularly when it is intense or enduring. In this booklet we examine the nature and symptoms of pain, and the effects it has on its victims when it is severe. As we consider these topics, you will find answers to questions you may have about pain.

> What is pain, and what is the physical basis for it?
> Can people feel pain when there is no underlying physical disorder?
> Do psychosocial factors affect our experience of pain?
> Since pain is a subjective experience how do psychologists assess how much pain a person feels?

WHAT IS PAIN?

Pain is the sensory and emotional experience of discomfort, which is usually associated with actual or threatened tissue damage or irritation (Sanders 1985). Virtually all people experience pain and at all ages – from the pains of birth for mother and baby, to those of colic and teething in infancy, to those of injury and illness in childhood and adulthood. Some pain becomes chronic, as with arthritis, problems of the lower back, migraine headache or cancer.

People's experience with pain is important for several reasons. For one thing, no medical complaint is more common than pain. According to researcher Paul Karoly, pain is the "most pervasive symptom in medical practice, the most frequently stated 'cause' of disability, and the single most compelling force underlying an individual's choice to seek or avoid medical care". People are more likely to seek medical treatment without delay if they feel pain. Also, severe and prolonged pain can come to dominate the lives of its victims, impairing their general functioning, ability to work, social relationships, and emotional adjustment. Lastly pain has enormous social and economic effects on all societies of the world. At any given time, a third or more of Americans suffer from one or more continuous or recurrent painful conditions that require medical care, and tens of millions of these people are partially or completely disabled by their conditions (Sanders, 1985; Von Korff, Dworkin & Le Resche, 1990). Each year in the United States tens of billions of dollars are spent on pain related expenses, such as for treatment, loss of income, disability payments and litigation.

THE QUALITIES AND DIMENSIONS OF PAIN

Our sensations of pain can be quite varied and have many different qualities. We might describe some pains as "sharp" and others as "dull" for example – and sharp pains can have either a stabbing or pricking feel. Some pains involve a burning sensation, and others have a cramping, itching or aching feel. Some pains are throbbing, or constant, or shooting or pervasive, or localized. Often the feelings we experience depend on the kinds of irritation or damage that has occurred and the location. For instance, when damage occurs deep within the body, individuals usually report feeling a “dull” or “aching” pain: but damage produced by a brief noxious event to the skin is often described as “sharp” (McClintic 1985; Schiffman 1976).

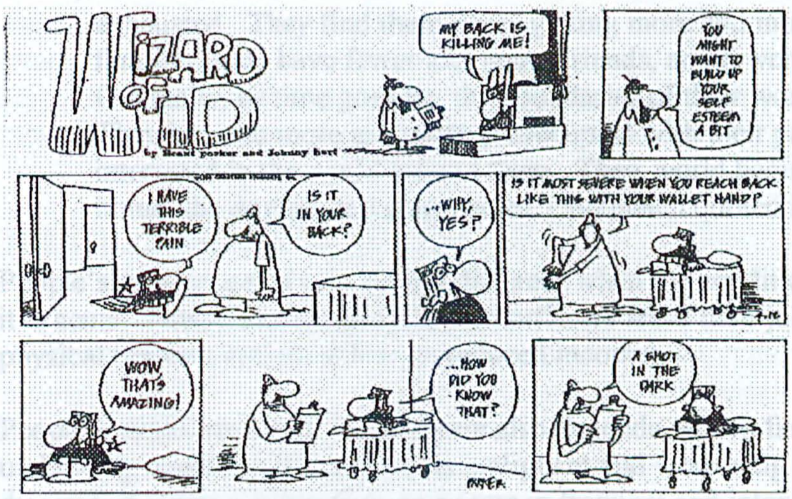
The painful conditions people experience also differ according to the origin of the pain and the duration of the conditions. We will consider two dimensions that describe these differences, beginning with the degree to which the origin of the pain can be traced to existing tissue damage.

ORGANIC VERSUS PSYCHOGENIC PAIN

People who suffer physical injuries such as a serious burn, experience pain that is clearly related to tissue damage. When discomfort is caused mainly by tissue damage, it is described as organic pain. For other pain, no tissue damage appears to exist – at least medical examinations fail to find an organic basis. The discomfort involved in these pains seems to result primarily from psychological processes. For this reason, this type of discomfort is described as psychogenic pain. Extreme examples of psychogenic pain are sometimes seen in the hallucinations of psychotic individuals: I once talked with a schizophrenic man who claimed – and really looked like – he was “feeling” the stings from being “shot by enemy agents with ray guns”.

Not long ago, researchers considered organic and psychogenic pain to be separate entities, with psychogenic pain not involving “real” sensations. As pain researcher Donald Bakal has noted, a practitioners reference to pain as “psychogenic” was taken to mean “due to psychological causes”, which implied that the patient was “imagining” his pain or that it was not really pain simply because an organic basis could not be found. Psychogenic pain is not experienced differently, however, from that arising from physical disease or injury. Psychogenic and organic pain both hurt.

Researchers now recognize that virtually all pain experiences involve an interplay of both physiological and psychological factors. As a result, the dimension of pain involving organic and psychogenic causes is viewed as a continuum rather than a dichotomy. Different pain experiences simply involve different mixtures of organic and psychogenic factors. A mixture of these factors seems clear in, for example, cases of muscle contraction headache, which results from sustained muscle tension that occurs when people experience stress (Weisenberg, 1977). But some pain patients experience chronic discomfort for which no physical basis can be detected. Psychiatrists classify this condition as a somatoform disorder and often assume the origin is mainly psychogenic (Davison and Neale 1990). Keep in mind, however, that failing to find a physical basis for a patient’s pain does not necessarily mean that there is none. Unfortunately many health care workers still think pain that has no demonstrated physical basis is purely psychogenic, and their patients struggle to prove that “the pain isn’t just in my head, Doc” (Karoly 1985).



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ACUTE VERSUS CHRONIC PAIN

Experiencing pain either continuously or frequently over a period of many months or years is different from having occasional and isolated short-term bouts with pain. The length of experience an individual has had with a painful condition is an important dimension in describing his or her pain.

Most of the painful conditions people experience are temporary – the pain arrives and then subsides in a matter of minutes, days, or even weeks, often with the aid of painkillers or other treatments prescribed by a physician. If a similar painful condition occurs in the future, it is not connected in a direct way to the earlier experience. This is the case for most everyday headaches, for instance, and for the pain typically produced by such conditions as toothaches, muscle strains, accidental wounds, and surgeries.

ACUTE PAIN

This refers to the discomfort people experience with temporary painful conditions that last less than 6 months or so (Chapman 1991, Turk,. Meichenbaum and Genest 1983). Patients with acute pain often have higher than normal levels of anxiety while the pain exists, but their distress subsides as their conditions improve and their pain decreases (Fordyce and Steger 1979).

When a painful condition lasts for more than a few months patients continue to have high levels of anxiety and tend to develop feelings of hopelessness and helplessness because various medical treatments have failed to alleviate their conditions. Pain can come to dominate their lives. This is what often happens when pain becomes **chronic**, as reflected in the following passage:

> Pain patients frequently say that they could stand their pain much better if they could only get a good night's sleep ……. They feel worn down, worn out,

> exhausted. They find themselves getting more and more irritable with their families, they have fewer and fewer friends, and fewer and fewer interests. Gradually, as time goes by, the boundaries of their world seem to shrink. They become more and more preoccupied with their pain, less and less interested in the world around them. Their world begins to centre around home, the doctors and pharmacies. (Sternbach quoted in Bakal 1979).

People's experience of pain is very different when the condition is chronic than when it is acute. Furthermore, many chronic sufferers leave their jobs for emotional and physical reasons, and must live on reduced incomes.

People's experience with chronic pain also depends on two factors: 1. whether the underlying condition is benign or is malignant and worsening and 2. whether the discomfort exists continuously or occurs in frequent and intense episodes. Using these factors. Researchers have described three types of chronic pain:

1. **Chronic/recurrent pain stems** from benign causes and is characterized by repeated and intense episodes of pain separated by periods without pain. Two examples of chronic/recurrent pain are migraine headaches and muscle contraction (tension) headaches: another example is myofascial pain, a syndrome that typically involves shooting or radiating but dull, pain in the muscles and connective tissue of the head ad neck, and sometimes the back (Hare and Milano 1985, Turk Meichenbaum and Genest 1983).

2. **Chronic/intractable/benign pain** refers to discomfort that is typically present all of the time, with varying level of intensity, and is not related to an underlying malignant condition. Chronic low back pain often has this pattern.

3. **Chronic/progressive pain** is characterized by continuous discomfort is associated with a malignant condition, and becomes increasingly intense as the underlying condition worsens. Two of the most prominent malignant conditions that frequently produce chronic/progressive pain are rheumatoid arthritis and cancer.

As we shall see later in this booklet the type of pain people experience influences their psychosocial adjustment and the treatment they receive to control their discomfort.

PERCEIVING PAIN

Of the several perceptual senses the human body uses, the sense of pain has three important and unique properties (Chapman 1984, Melzack and Wall 1982). First although nerve fibres in the body sense and send signals of tissue damage the receptor cells for pain are different from those of other perceptual systems such as vision. Whereas the visual system contains specific receptor cells that transmit only messages about a particular type of stimulation – light – there are no specific receptor cells in the body that transmit only information about pain. Second the body senses pain in response to many types of noxious stimuli, such as physical pressure, lacerations, and intense heat or cold. Third the perception of pain almost always includes a strong emotional component. As we are about to see perceiving pain involves a complex interplay of physiological and psychological processes.

THE PHYSIOLOGY OF PAIN PERCEPTION

To describe the physiology of perceiving pain we will trace the bodily reaction to tissue damage, as when the body receives a cut or burn. The noxious stimulation instantly triggers chemical activity at the site of injury, releasing chemicals called algogenic substances that exist naturally in the tissue (Chapman 1984). These chemicals which include serotonin, histamine and bradykinin function to promote immune system activity, cause inflammation at the injured site, and activate endings of nerve fibres in the damaged region, signalling injury.

The signal of injury is transmitted by afferent neurons of the peripheral nervous system to the spinal cord, which carries the signal to the brain. The afferent nerve endings in a damaged region of the body that respond to pain stimuli and signal injury are called nociceptors (Bakal 1979, Chapman 1984). These fibres have no special structure for detecting injury, they are simply free nerve endings. They may be found in skin, blood vessels, subcutaneous tissue, muscle, joints and other structures. When activated, these end organs, like other receptors, generate impulses that are transmitted along peripheral fibres to the central nervous system. (Chapman 1984).

There are several types of afferent peripheral fibres, and pain signals are carried by only two types: A-delta and C fibres. A-delta fibres are coated with myelin, a fatty substance that enables neurons to transmit impulses very quickly. These fibres are associated with sharp, well localized, and distinct pain experiences. C fibres transmit impulses more slowly because they are not coated with myelin and seem to be involved in experiences of diffuse dull, burning or aching pain sensations (Bakal 1979, Chapman 1984, Melzack and Wall 1982).

Signals from A delta and C fibres follow different paths when they reach the brain(Bloom, Lazerson and Hofstadter 1985). A delta signals, which reflect sharp pain, pass through specific areas of the thalamus on their way to motor and sensory areas of the cerebral cortex. This suggests that signals of sharp pain receive special attention in our sensory awareness, probably so that we can respond to them quickly. On the other hand C fibre signals, which reflect burning or aching pain, terminate mainly in the brainstem and lower portions of the forebrain, such as the limbic system, thalamus, and hypothalamus. The remaining C fibre impulses spread to many areas of the brain by connecting with a diffuse network of neurons. Signals of dull pain are less likely to command our immediate attention than those of sharp pain, but are more likely to affect our mood, general emotional state, and motivation.

So far the description we have given of physiological reactions to tissue damage makes it seem as though the process of perceiving pain is rather straightforward. But it actually isn't. One phenomenon that complicates the picture is that pains originating from internal organs are often perceived as coming from other parts of the body, usually near the surface of the skin. This is called referred pain (Guyton 1985, McClintic 1985, Melzack and Wall 1982). The pain people experience in a heart attack provides one of the most widely known examples of this phenomenon: the pain is referred to the shoulders, pectoral area of the chest, and the arms. Other examples of referred pain include:

- Pain perceived to be in the shoulder that results from inflammation of the diaphragm.
- Pain in the upper middle abdomen during the first stages of appendicitis (the appendix is deep in the lower right side).
- Pain in the ear or in the wrong area of the mouth that results from a toothache.

Referred pain results when sensory impulses from an internal organ and the skin use the same pathway in the spinal cord. Because people are more familiar with sensations from the skin than from internal organs, they tend to perceive the spinal cord impulses as coming from the skin (Guyton 1985).

MODIFICATION OF PAIN MESSAGES

Our natural instinct when we hurt ourselves is to rub the injury and this action often reduces the pain. There is a scientific basis for this called the "gate control theory".

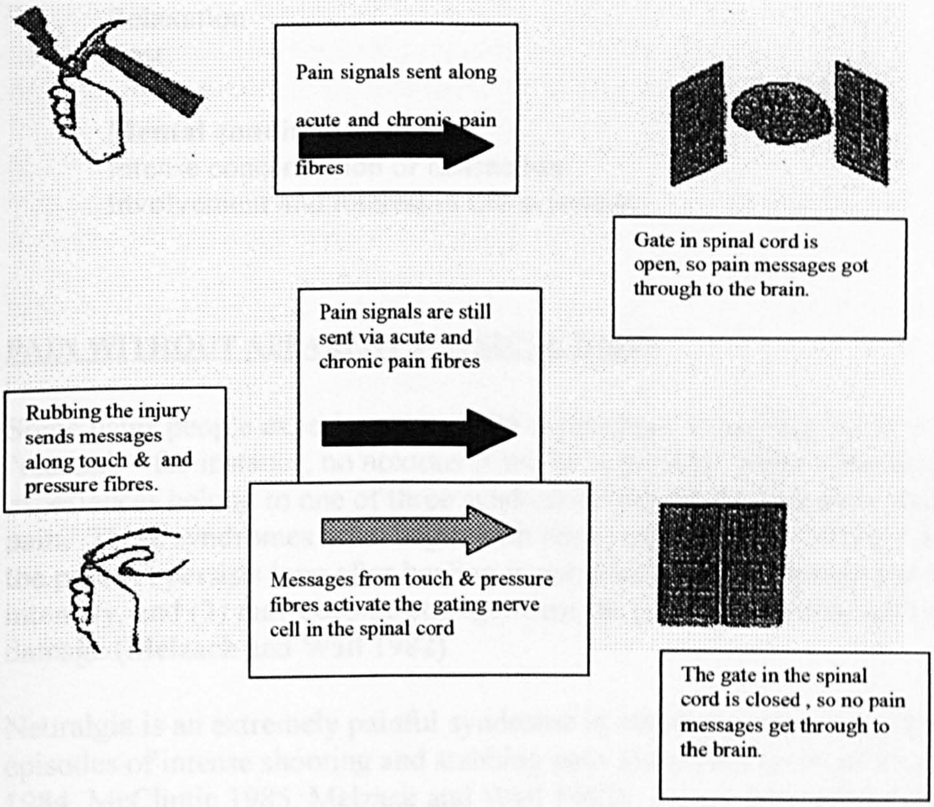
When pain information is transferred from the sensory nerve cells around the body to the nerve cells in the spinal cord, it is modified by a gating mechanism. This gating mechanism is carried out by a short gating nerve cell in the spinal cord.

When the gate is open, pain messages can get through and be passed to the brain. When the gate is closed, pain messages cannot be passed to the brain.

Messages from touch and pressure fibres close the gate and prevent pain signals being passed to the brain, so rubbing an injury eases the pain.

Cells in the brain and spinal cord also produce chemicals that prevent the transmission of pain messages. These chemicals include endorphins and encephalins. Endorphins and encephalins bind to receptors in the brain and spinal cord to prevent the transmission of pain messages. Endorphins and encephalins are released when you are happy.

GATE CONTROL THEORY



Pain signals sent along acute and chronic pain fibres

Gate in spinal cord is open, so pain messages got through to the brain.

Rubbing the injury sends messages along touch & and pressure fibres.

Pain signals are still sent via acute and chronic pain fibres

Messages from touch & pressure fibres activate the gating nerve cell in the spinal cord

The gate in the spinal cord is closed , so no pain messages get through to the brain.

CONDITIONS THAT OPEN THE GATE

- **Physical conditions**
  Extent of the injury
  Inappropriate activity level
- **Emotional conditions**
  Anxiety or worry
  Tension
  Depression
- **Mental conditions**
  Focusing on the pain
  Boredom: little involvement in life activites.

CONDITIONS THAT CLOSE THE GATE

- **Physical conditions**
  Medication
  Counter stimulation (e.g. heat or massage)

- **Emotional conditions**
  Positive emotions (e.g. happiness or optimism)
  Relaxation
  Rest

- **Mental conditions**
  Intense concentration or distraction
  Involvement and interest in life activities.

PAIN WITHOUT APPARENT PHYSICAL BASIS

Some pains people experience are quite mysterious, since they occur with no apparent "reason" – for instance, no noxious stimulus is present. Most of these pain experiences belong to one of three syndromes: neuralgia, causalgia, and phantom limb pain. These syndromes often begin with tissue damage, such as from an injury, but the pain (1) persists long after healing is complete, (2) may spread and increase in intensity, and (3) may become stronger than the pain experienced with the initial damage (Melzack and Wall 1982).

Neuralgia is an extremely painful syndrome in which the patient experiences recurrent episodes of intense shooting and stabbing pain along the course of a nerve (Chapman 1984, McClintic 1985, Melzack and Wall 1982). In one form of this syndrome called trigeminal neuralgia, excruciating spasms of pain occur along the trigeminal nerve that projects throughout the face. Episodes of neuralgia occur very suddenly and without any apparent cause. Curiously, attacks of neuralgia can be provoked more readily by innocuous stimuli than by noxious ones. For instance, drawing a cotton ball across the skin can trigger an attack, but a pin prick does not.

Another mysterious pain syndrome is causalgia, which is characterized by recurrent episodes of severe burning pain (Melzack and Wall 1982, Weisenberg 1977). A patient with causalgia might report, for instance, that the pain feels "like my arm is pressed against a hot stove". In this syndrome, the pain feels as thought it originates in a region of the body where the patient had at some earlier time been seriously wounded, such as by a gunshot or stabbing. Curiously, only a small minority of severely wounded patients develop causalgia – but for those who do, the pain persists long after the wound has healed and damaged nerve have regenerated. Episodes of causalgia often occur spontaneously and may take minutes or hours to subside but may occur repeatedly each day for years after the injury. The frequency and intensity of the spontaneous pain attacks may increase over the years, and the pain may even spread to distant areas of the body. (Melzack, quoted in Bakal 1979).

Like Neuralgia, attacks of causalgia can be triggered by minor stimuli, such as a gentle touch or a puff of air.

Phantom limb pain is an especially puzzling phenomenon because the patient an amputee or someone whose peripheral nervous system is irreparably damaged – feels pain in a limb that either is no longer there or has no functioning nerve (Chapman 1984, Melzack and Wall 1982). After an amputation, for instance, most patients claim to have sensations of their limb still being there – such as by feeling it "move" and most of these individuals report feeling pain, too (Katz and Melzack 1990). Phantom limb pain generally persists for months or years, can be quite severe, and sometimes resembles the pain produced by the injury that required the amputation. Although the pain tends to decrease over time, it sometimes gets worse. (Bakal 1979). Individuals with phantom limb pain may experience either recurrent or continuous pain and may describe it as shooting, burning or cramping. For example, many patients who feel pain in a phantom hand report sensing that the hand is tightly clenched and its fingernails are digging into the palm.

Why do people feel pain when no noxious stimulation is present? Perhaps the answer relates to the neural damage that precedes the development of causalgia and phantom limb pain – and perhaps even neuralgia involves neural damage, albeit of a less obvious nature, such as from infection (Hare and Milano 1985). But then why is it that the large majority of patients who suffer obvious neural damage do not develop these curious pain syndromes? Although the puzzle is far from being solved, the explanation will almost surely involve both physiological and psychological factors.

THE ROLE OF THE "MEANING" OF PAIN

Some people evidently like pain – at least under some circumstances and are described as masochists. For them, the mean of pain seems to be different from what it is for most people. Some psychologists believe individuals may come to like pain through classical conditioning, that is, by participating in or viewing activities that associate pain with pleasure in a sexual context (Wincze 1977). Most of the evidence for the view that the meaning of pain can change by its association with pleasure comes from research with animals. For example, Ivan Pavlov (1927) demonstrated that the dogs' negative reaction to aversive stimuli, such as electric shocks or skin pricks, changed if the stimuli repeatedly preceded presentation of food. Eventually, the dogs would try to approach the aversive stimuli, which now signalled that food, not danger, was coming.

Henry Beecher (1956) described a dramatic example of how the meaning of pain affects people's experience of it. During World War II, he had examined soldiers who had recently been very seriously wounded and were in a field hospital for treatment. Of these men, only 49% claimed to be in "moderate" or "severe" pain and only 32% requested medication when asked if they "wanted something to relieve it". Some years later, Beecher conducted a similar examination, this time with civilian men who had just undergone surgery. Although the surgical wounds were in the same body regions as those of the soldiers, the soldiers' wounds had been more extensive. Nevertheless, 75% of the civilians claimed to be in "moderate" or "severe" pain and 83% requested medication. (The painkillers used in both groups were narcotics).

Why did the soldiers – who had more extensive wounds – perceive less pain than the civilians? Beecher described the meaning the injuries had for the soldiers:

The men studied had been subjected to almost uninterrupted fire for weeks. Notable in this group of soldiers was their optimistic, even cheerful, state of mind .... They thought the war was over for them and that they would soon be well enough to be sent home. It is not difficult to understand their relief on being delivered from this area of danger. The battlefield wound marked the end of disaster for them.

For the civilian surgical patients, however, the wound marked the **start** of a personal disaster and their condition represented a major disruption in their lives.

People's perceptions of body sensations are influenced by cognitive, social and emotional factors, for instance, that they are less likely to notice pain when they are distracted by competing environmental stimuli, such as while participating in competitive sports. Psychological factors play an important role in perceiving pain, and theories of pain need to take these factors into account.

(Taken from Health Psychology 1990 Edward P. Sarafino – John Wiley and Sons. Publishers)

Session 3

STRESS MANAGEMENT

RNOH NHS TRUST
ACTIVE BACK PROGRAMME

A.J. Lucas
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The Value of Stress Reduction

Although some stress may be beneficial, there are several reasons why learning to manage stress is helpful if you suffer from chronic pain. The first is that one effect of stress is increased muscle tension, which in turn can increase pain. Second, to be constantly under excessive stress is exhausting and leaves you less able to cope with pain. Finally, being under stress makes depression more likely. Depression will not only diminish your enjoyment of life, but heighten your perception of pain.

What are Stressors

It is not only major events, such as bereavement, serious illness or moving house that cause stress. Indeed physical illness has been shown to be more closely linked with the number of minor everyday problems we experience (such as traffic, arguments or noise) than with major life events. Nor need stressors be always unpleasant, holidays or promotion at work can be just as stressful as more unpleasant events. Stress can be chronic or short term, predictable or unpredictable. The stressor can come from outside (financial problems, losing work) or it can be entirely self generated and come from our own thoughts.

Unhelpful Ways of Coping with Stress

Many people have more stress in their lives than they would choose and most have developed ways of coping. Some coping styles are more helpful than others. Coping strategies which are very common but better avoided include:

Negative thinking styles that increase stress

- Looking on the bad side (catastrophising)
- Jumping to conclusions.
- Global/selective thinking.
- Thinking in extremes.
- Ignoring the facts.
- Assuming that you/people/situations can't change.
- Predicting the future.

Common Negative coping behaviours

Avoidance	**Social**	
		Work/home management. **Things we enjoy.**
	Overdependence	**family/friends/partners** **Alcohol/drugs/tobacco**
	Inactivity/overactivity	
	Self neglect	**Poor diet, disrupted routine, poor Posture, high muscle tension, low Exercise.**
	Allowing pain/condition to become main focus of life.	
	Focusing on what you can't do.	

Effective Ways of Coping with Stress

Identify the Stressors

An essential first step in stress management is to identify and write down what is causing stress. The problems are not likely to be solved unless you can first identify them. Common sources of stress include:

- Pain
- Restricted mobility (in/out of home)
- Less independence in self care and domestic activities.

- Restricted social/recreational outlets.
- Relationship problems.
- Restricted sex life.
- Disturbed sleep.
- Financial problems.
- Loss of job/reduced work options.
- Disrupted working pattern.
- Depression/anxiety (including suicidal feelings)
- Low self esteem/confidence.
- Over dependence on alcohol/drugs.

Solutions

It is important to think of the sources of stress, once identified, as problems to be solved and to be prepared to make alterations in your life to minimise them.

Common Beliefs/Attitudes that Underlie Emotional Stress.

- Making negative comparisons between yourself and others.
- Not allowing yourself to make mistakes.
- Believing you can't cope using your own resources/ignoring your strengths.
- Believing everyone expects you to be perfect.
- I should/I must/I ought – pressurising yourself.
- Believing that the past dictates the future and nothing can be done to change things for the better.
- Expecting things to go perfectly and being very upset when they don't.
- Not seeing that it is usually how we react to problems that causes the greatest distress – not the problems themselves.

For each stressor, list all the possible solutions you can think of, and consider whether the stressor can be eliminated altogether from your life, or at least reduce its effects. Some stress, for example, may come from self imposed or unnessarily high standards concerning house-care for instance or work. Adopting a less demanding standard could relieve a lot of stress.

Useful Challenges

- Am I taking all the facts into account?
- Is there a more positive/useful way of looking at things?
- Have I overlooked the important aspects?
- Am I paying too much attention to unimportant aspects?
- Am I underestimating myself and my abilities?
- Am I judging myself too harshly/putting myself down?
- Am I basing my reactions on feelings rather than facts?
- Am I "catastrophising"?

- Am I thinking in extremes/jumping to conclusions?
- Am I putting myself under pressure unnecessarily?
- Am I setting myself unrealistic goals, e.g. too high/low?
- Is there a more balanced/objective view? How would someone else see things?
- Am I taking on too much responsibility for the outcome of situations over which I do not have full control?
- Am I exaggerating the likelihood of the "worse" happening?
- If the "worst" did happen would it really be as terrible as I think?
- Will this really matter in one/two year's time?

Annoyances caused by other people (perhaps quite unintentionally) can sometimes be dealt with by a combination of diplomacy and assertiveness. It is important to be able to let people know, for example that certain things they do are upsetting, and to learning how to negotiate a change. Isolation and boredom are particularly common causes of stress in people who have become disabled by pain and increasing activities and social contact can significantly reduce stress. Some problems can be made worse by too much avoidance behaviour. For example, always avoiding situations that cause you anxiety, such as being in a crowded place, can lead to ever increasing anxiety whenever you are in that situation. Avoiding short term unpleasantness in other areas (e.g. in the solution of financial problems) can also cause worse long term problems. So considering whether there might be too much avoidance in your life is also useful in reducing your stress levels.

When choosing what coping methods to adopt, be prepared to tackle one part of the problem at a time, choose and try one solution persisting long enough for it to have a chance of working and then evaluate how well you have succeeded.

Positive Coping Strategies

- Find out the FACTS about the problem.
- Look at the problem/pain in a different and more constructive way.
- Find out what situations/actions/relationships in your life make the problem worse.
- Use relaxation skills to reduce muscle tension and pain.
- Put yourself back in charge – you're the expert.
- Discover how your thinking style/attitudes may be making the problem worse and CHALLENGE IT!
- Develop pain management skills e.g. activity pacing.
- Keep fit – healthy lifestyle.
- Deal with your grief/feelings of loss.
- Do something you enjoy every day.
- Set clear goals.

- Be crystal clear about exactly what you intend to do and how including precise actions and time limits.
- Set goals relating to your whole lifestyle and emotional well being – not just your back problem.
- Set realistic and achievable goals – not too high/low/fast/slow.
- Set overall goal first and then the small steps to take in working towards it.
- Expect some set backs along the way. These should be seen as useful learning opportunities.
- As you achieve each small target don't forget to REWARD yourself and RECOGNISE your very real achievement.

Insoluble Problems

Occasionally the cause of your problems cannot be removed completely, but the level of stress can often be reduced by scheduling breaks in the stressful situation and where possible planning ahead to minimise stress when it is predictable (for example when a house removal is scheduled). Research has shown that having the support of a confidant (someone to confide in and talk to) acts as an important buffer against avoidable stress.

As before, even where the aim is only to reduce stress, list possible methods, choose one, put it into practice and evaluate its effectiveness.

Altered Reactions to a Stressor

The less the source of stress is amenable to change, the more important it will be to alter your own reaction to it. The situation may remain unchanged, but if you change your response to it, its effects will be much less serious.

STRESS SURVIVAL STRATEGIES

- **Increase your sense of control over stressful situations, for example by applying stress management techniques.**
- **Accept aspects of stressful situations that you cannot change/control and try instead to change the way you perceive and react to them.**
- **Talk problems over with people that you trust, get another perspective.**
- **Learn to think rationally and positively.**
- **Look after your physical health during stressful periods, keep fit, eat wisely, get enough sleep and don't resort to drugs/alcohol.**
- **Develop satisfying recreation/creative and social outlets.**
- **Make relationships your priority.**
- **Seek out opportunities for fun and laughter.**

- **Do something nice for someone else.**
- **Make time to plan ahead, decide on your priorities, and set your goals accordingly.**
- **Improve your time management skills.**
- **Learn to say "No".**
- **Don't try to do everything yourself, delegate more.**
- **Stop trying/expecting yourself to be perfect.**
- **Develop relaxation skills and make relaxation a regular routine.**
- **Give yourself a break when you're tired/ill.**
- **At times of conflict, avoid taking things personally/blaming others, try to distance yourself.**
- **Allow yourself to make mistakes without condemnation.**
- **Be kind to yourself, stop putting yourself down, and remember to treat yourself when you've achieved something.**
- **Live for the moment, don't waste time worrying about the future/regretting the past.**

Session 4

MANAGING MOOD

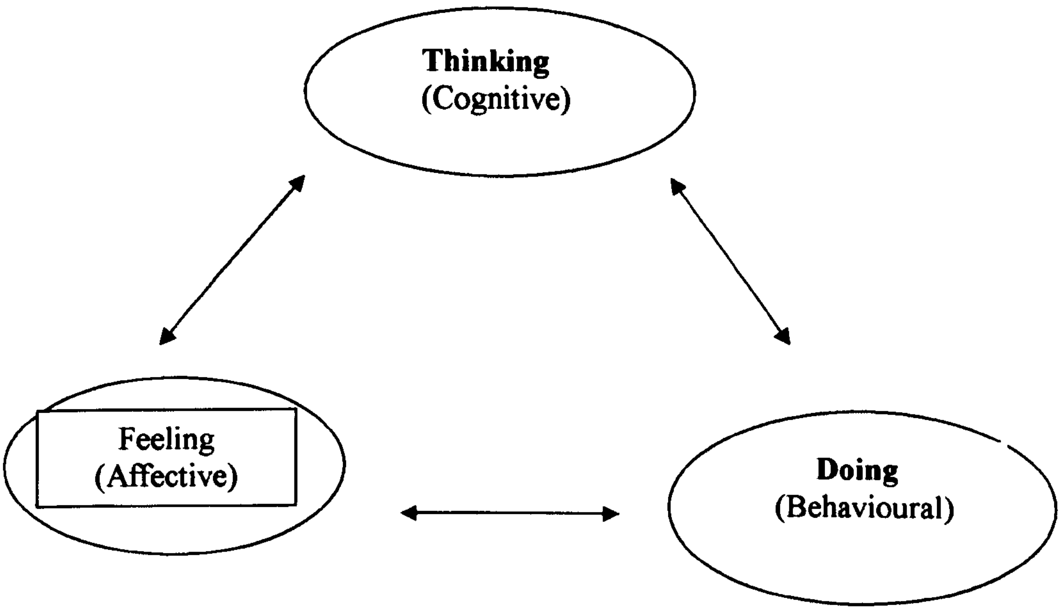
RNOH NHS TRUST
ACTIVE BACK PROGRAMME

A.J. Lucas
Chartered Health Psychologist

What I **DO** will influence my Thoughts and Feelings

What I **THINK** will influence my Feelings and Behaviour

What I **FEEL** will influence my Thoughts and Behaviour



Managing Mood

"I am what I think"

Managing mood problems include depression, anxiety, panic attacks, anger, guilt and feelings of inferiority.

Thoughts create mood

"I can't help the way I feel"   "it's the way I am"

You can learn to change the way you think, feel and behave.

Suppose you are given a compliment, " I think you did very well with that task", how will you react?

Will you feel - Complimented?

Angry?

Flattered?

Happy / pleased?

Sad?

The statement is the same but people will react differently. The way you think / interpret the statement will predict how you react.

Similarly, if someone makes an unpleasant remark about you.

Negative thoughts can lead to negative feelings about oneself.

Some negative thoughts are appropriate and healthy – it may be useful to accept the situation for what it is.

10 types of negative thinking

1. All or Nothing

Occurs when an individual has a narrow view and leaves himself or herself vulnerable. Example of someone who thinks his or her house needs to be immaculate all the time. What are the consequences of holding such a thought? What if you are trying to exercise on a regular basis and you miss one session? Would you say "well I have missed my exercise session so what is the point, I will not bother".

2. Overgeneralization

One event leads you to say, "Just my luck, this always happens to me". This might be seen when thinking and unable to complete a task due to pain, "I cannot finish the garden and that proves I never complete any jobs".

3. Mental Filter

This is seen when you focus and dwell on a single negative event. A patient may make significant progress during the Programme but still complains of being in pain.

4. Discounting the Positive

A person may ignore positive experiences because "they don't count". You may do a good job but think, "it does not matter because anyone could have done it".

5. Jumping to Conclusions

Fortune Telling – you may predict things will turn out badly ("What is the point of attending the Active Back Programme, it will not do anything for me")

Mind Reading – you may conclude someone is reacting negatively towards you

6. Magnification

You might exaggerate the importance of your problems or minimise the importance of your desirable qualities.

7. Emotional Reasoning

This can be seen when you assume your negative emotions necessarily reflect the way things really are; " I feel angry and this proves I am being treated unfairly".

8. Should Statements or Musterbation

This can be seen when you feel you have to do a certain task, or behave in a certain way. For example, " I should always be able to help if someone asks" or "I must always get an A grade in my exams".

9. Labelling

You may make a mistake and think you are a fool. What are the effects of labelling yourself or someone else? Surely it is better to say "You did a foolish thing" rather than "You are a foolish person".

10. Personalisation and Blame

Personalisation occurs when you hold yourself personally responsible for an event not entirely under your control. For example, you may not benefit from the first week of the ABP and think, "well, its all my fault I have not gained very much".

Blame is seen when you hold the ABP team responsible for not making progress in the first week. Or, "my pain has stopped me making any progress".

10 ways to Challenge Negative Thinking

1. Identify the A B C

A = Actual event (flare up of pain)

B = Belief ("I cannot cope with this pain")

C = Consequences (Feel hopeless and depressed)

It is worth writing down a negative thought and try to understand how it fits into the ABC.

2. Examine the Evidence

Sometimes a negative thought is based on an incorrect assumption about the world. You may believe the pain stops you "doing everything"; look for activities you can successfully complete. Challenge the negative thought with evidence.

3. Test for Double Standards

Would you apply the same criticism to a close friend as you apply to yourself? Your standards might be unrealistic. You may think you might fail a test and put yourself down with negative thoughts, but would you say the same to a friend?

4. Use Experiments to test your beliefs

You may hold a belief such as "the pain stops me enjoying life". *Go out and test your belief!* "What will happen if..."? Rather than accepting old negative beliefs as fixed in stone, try to test the reality.

5. Think in Shades of Grey

All or nothing thinking might be undermining your ability to cope with the pain. It might be helpful to remind yourself that things are usually somewhere between 0 and 100%, instead of insisting it all one way or another.

6. Use Surveys

It may be helpful to consider if other people would regard your negative thought as valid and reasonable. Do you hold negative beliefs that are shown by other people?

7. Define your terms

What do you mean when you label yourself as "useless"? It is vague and meaningless. Yes the pain may prevent you undertaking some tasks but is anyone really useless. Be careful about making sweeping statements such as " The pain always stops me doing what I want".

8. Challenge and Substitute the SHOULDS!

Thinking you have to or should be doing something may place unnecessary pressure and undermine your coping. Do you really have to do something if there is a risk of flaring the pain? It might more helpful to substitute "should" with "it would be better or preferable".

9. Try Re-attributing!

Blaming yourself or others can contribute to negative thinking. Try to be objective when thinking who or what is responsible for a situation. Listing other possible factors can be helpful. Thinking "its all my fault" will strengthen negative thinking so consider your role but also the role of other factors.

10. Cost Benefit Analysis

Consider how a negative thought helps or harms you. What are the effects of thinking negatively? Exploring the "costs" of a negative thought may help to challenge it. How do you benefit from holding a negative thought?

Conclusion

Challenging negative thoughts will take time and practice. Do not expect yourself to eliminate all negative thoughts, as these may be appropriate at times. Try to identify the negative thought and practice challenging using the techniques described above.

Session 5

ASSERTIVENESS

RNOH NHS TRUST
ACTIVE BACK PROGRAMME

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"Assertiveness" is a way of expressing how you feel, while respecting the rights of others: "I count, you count". There are three common obstacles to becoming assertive:

1. You do not feel entitled to speak up for how you feel, what you want, or what you need.
2. You confuse assertiveness with passiveness ("You count, I don't") or with aggression ("I count, you don't").
3. You don't know why you feel the way you do, either because of you never thought about it or because you are communicating in a style that is based on past or traditional assumptions or attitudes.

Obstacle 1: *Not feeling entitled to speak up*

Just as you learn irrational beliefs and cognitive distortions, you learn certain "rules" of communication early in life:

> "It's not proper to speak unless spoken to"
>
> "Children should be seen and not heard"
>
> "You are obligated to answer all inquiries. If questioned, you must give an answer".
>
> "You should always accommodate others. It's not right to say no".

From these subtle "golden rules" you learn to suppress your opinion. Again, according to Deborah Tannen (see "Supplementary Reading"), you have learned this particularly thoroughly if you are a woman: Females receive different messages about communication than males do, and one of these is that women should not speak up for themselves.

Many of you may still feel uncomfortable about speaking up for what you feel, want, or need. You may find it helpful to consider assertiveness as a two-way street, you do have a right to express your opinion about how you feel and what you want to think you need, however, there are responsibilities that go along with those rights, which imply your awareness of the rights, wants, and needs of others. Melodie

Chenevert, a nurse, writes about the need for rights and responsibilities in her book *Special Techniques in Assertiveness Training: STAT:*

Rights – Responsibilities

Rights	**Responsibilities**
To speak up	To listen
To take	To give
To have problems	To find solutions
To be comforted	To comfort others
To work	To do your best
To make mistakes	To correct your mistakes
To laugh	To make others happy
To have friends	To be a friend
To criticize	To praise
To have your efforts rewarded	To reward others' efforts
To independence	To be dependable
To cry	To dry tears
To be loved	To love others

From Melodie Chenevert, Special Techniques in Assertiveness Training: STAT (St. Louis: C.V. Mosby, 1988, page 64). Copyright 1988 by C.v. Mosby. Reprinted by permission.

Take time to add other rights and responsibilities to those listed here. The assertive person knows that abusing either rights or responsibilities is self-destructive.

Obstacle 2: *Confusing Assertiveness with Passiveness or Aggression*

Let's consider three basic styles of interpersonal behaviour – passive, aggressive and assertive – from the perspective of our previous discussion. What are the intentions of passive, aggressive, and assertive statements?

Statement		**Intention**
	Passive	
"Okay, whatever you say, I don't care" "Do whatever you want to do (sigh)"		To keep the peace, I don't make waves; I compromise even when it is not called for. You count, I don't.
	Aggressive	
"You are a jerk! It's all your fault" "I don't care what you say" "Don't you tell me what to do"		To win, I punish, blame, or strike back whenever I think it is necessary. I count, you don't.
	Assertive	
"I feel sad when you don't ask what I would like to do, because it makes me think you don't care about what I would like or about me. I want you to ask me what I would like to do, and I will promise to come up with some ideas or not hold you responsible if I don't".		I express my feelings, define the behaviour of yours that gives rise to those feelings, and state the reason I feel the way I do. Adding "I want" and "I will" expands the assertive statement by clarifying a described action of behaviour and identifying my responsibility in this interaction. I count, you count.

The advantage of speaking assertively is that it gives you the opportunity to express your point of view. However, this style also demands a certain honesty about, and a clear understanding of, what it is you really want. Hence, the third obstacle to assertiveness.

Obstacle 3: ***Not knowing why you feel the way you do***

What do you want? Why do you want it?

The "formula" for assertive communication is as follows:

"I feel __________ when you __________,because____________".

This formula requires that **all three** elements be included. Many people get stuck after "I feel", completing the rest of the sentence means getting in touch with yourself and exploring your inner feelings. Let's take a look at why it's important to do so.

Paul had suffered a painful diabetic neuropathy involving his hands and lower extremities for almost two years and had become unable to do his job as a plumber. Out of work for six months, he found himself bored and irritable.

One day his oldest child came home from school and made the comment that it was cold in the house. Paul became enraged and stormed out to the garage, where he commonly retreated when he became upset. He said to himself, "It didn't feel cold to me, the child must be a wimp". Upon further reflection, however, he found himself making statements like, "It's the father's responsibility to provide warmth, food, and protection to his family. If I can't provide for my family, then I'm worthless".

Paul had not been aware until then about how distressed he had felt not being able to work. He went back into the house, and after dinner discussed his feelings with his family. His oldest child informed him that the pilot light had gone out on the gas furnace and that he had relit it. They all had a good laugh when Paul told them how angry he had felt when the son had commented about the heat, and how he had taken it as a sign that he couldn't even provide his family with the basics, such as warmth.

Once Paul was able to express his concerns in an assertive way, he was able to receive the reassurance from his family that they understood and did not think him any less of a father or provider because he was not working outside the home.

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Theresa, another patient, expressed frustration over a bathroom remodelling project that was going on at home. She found herself extremely irritated with her husband when he showed her a set of taps that he thought might look nice in the bathroom. She was outraged, and responded that the taps would be hard to clean and she was the one who would be cleaning them.

When Theresa was asked to turn her response into an assertive statement to her husband, she said, "I feel annoyed when you show me fancy taps to put in the bathroom, because for the past 25 years you have never taken what I do into consideration. You always take me for granted". She was deluged with and *surprised by feelings resulting from 25 years of marital frustrations. An important thing to keep in mind about assertive messages is that they cannot be used to correct all past damages and unspoken hurts. Theresa was able to see this, and realized that her responsibility was to decide what she really wanted to communicate. She also realized that she and her husband needed to do much more talking and be less silent with each other.*

Theresa's statement then became this: "I feel conflicted when you ask for my approval of fancy taps, because, while they are very pretty, I would find them hard to clean. When you present me with what seem to be thoughtless choices, I wonder if you ever think about all that I do at home when you're at work". Actually as it turned out, her husband had never thought of it that way. He was able to appreciate why she might not be ecstatic about his choice of taps, and Theresa was able to feel proud that she had stood up for herself.

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"I want" statements will help direct the action you feel is desirable. For those situations where there is a need for compromise or clarification, "I will" statements can facilitate acceptance of the requested action. For example, Theresa might have stated to her husband, "If you bring me a catalogue of taps, I will make an effort to choose one that suits my needs".

It's important to differentiate between a hurtful and aggressive statement and one that is used to clarify your feelings or intentions. For example, the statement, "I feel you are a jerk" is not assertive, even though it begins with "I feel". Although aggressive statements may flow more easily than assertive ones, they rarely accomplish anything except revenge ("I showed them"), which is usually short lived. They either complicate further communication possibilities or eliminate them altogether.

Passive statements, such as "It's up to you" or "I don't care", may be appropriate at times when used judiciously and consciously. If they merely reinforce martyrdom or self-abuse, then they too will poison communication attempts and relationships.

The major difficulties in beginning assertive communication are 1. becoming conscious of why you feel the way you do; and 2. taking responsibility for how you feel, rather than blaming others or wishing things could be different. One of the reasons why Chapter 6 has given you the opportunity to identify negative automatic thoughts and other negative responses is to help you overcome these difficulties. Although at first it may seem uncomfortable or awkward to state directly how you feel, it allows for true dialogue (two way communication) to take place. Completing the Assertiveness Questionnaire provided at the end of this chapter, will enable you to identify the situations where assertiveness may be more awkward for you.

Repetition

This technique involves a calm repetition – as the name suggests – repeating your statement over and over again. This skill helps you to be clear about what it is you do want and then by staying with the repetition, you can maintain your position in the face of manipulative comment, irrelevant logic and argumentative bait.

Clearing the fog

This accompanies the repetition. It teaches you how to acknowledge that there may be some truth in what the other person is saying but **at the same time**, allows you to remain strong and undeterred. You are able to continue with your statement or request without feeling defensive, aggressive or anxious.

Reflecting back

This skill helps you to handle hostile or constructive criticism from others. By agreeing with and accepting criticism if it is appropriate, you need not feel totally demolished. Instead of reacting to criticism as an accusation you can feel less defensive and become more accepting of yourself.

Assertive Inquiry

This skill follows on from Reflecting back. It enables you to prompt criticism in order to use the information if the criticism is constructive or to expose it if only manipulative. This skill also allows the other person to express negative feelings directly and leads to a general improvement in communication.

Making Requests

1. Remember you have a right to make your wants known to others.
2. When you do not ask for what you want, you deny your own importance.
3. The best chance you have of getting exactly what you want is by asking for it specifically and directly. If you ask indirectly or drop hints, you run the risk of not being heard or understood and your request may go unheeded as a consequence.

Refusing Requests

1. Learn to notice your immediate gut response when the request is made. This can be an infallible guide as to whether or not you really **want** to say "Yes" or "No" in reply.
2. If you hesitate, ask for more information about what your commitment would entail if you were to agree to the request.
3. Remember you have a right to say "No" for yourself. When you say "Yes" and deny your wish to say "No", you put yourself down and deny your own importance. You will also find a way of saying "No" indirectly.
4. Practice saying "No" clearly and directly, without excessive apology or justification.
5. Whenever possible, take responsibility for saying "No" rather than blaming someone else as an excuse.
6. Remember, you are refusing the request, **not** rejecting the person!.
7. Saying "No" and surviving the awful guilt gets easier with practice!

Body Language

Posture and distance	Do you stand up straight or slouched? Are you too near or too far from the other person? Are you higher or lower?
Eyes	Is your gaze relaxed and friendly? Do you maintain eye contact or avert your eyes?
Mouth	Do you hold your jaw tightly? Is your smile appropriate or misleading?
Voice	Watch the tone, inflection and volume. Notice if you whine or bellow; whether you convey sarcasm through the tone of your voice.
Gestures	Watch for hands over your mouth or hands clutching at hair or jewellery or clasped behind your back. Are your feet shifting from one to the other? Your arms folded?
Content	Are you mumbling or speaking audibly? Do you swallow your words or come across loud and clear?
Appearance	What does your appearance say about the impression you wish to convey to other people?
Breathing	Deepen your breathing and calm yourself prior to an assertive confrontation. Noticing your breathing and learning how to relax your body reduces your anxiety and helps you feel poised and centred, even in a difficult situation.

Recommendations for Self Help with Assertion

1. Reflect on your own behaviour – are you satisfied with how you behave in interpersonal situations?

2. Monitor your behaviour and other relevant responses – keep a diary for a week showing situations in which you responded assertively and those in which you didn't. Any differences in the situations which would explain your different behaviour? List possible reasons for differences in behaviour.

3. Choose one situation and imagine your responses (behavioural, verbal, affective).

4. Examine your responses in terms of components of assertive behaviour (verbal and non-verbal). What did you do that you were pleased with? What needs changing?

5. If possible watch or remember someone who handled a similar situation well – what did they do?

6. Consider how you could have handled your situation differently.

7. Imagine yourself dealing with the situation more assertively, until you feel comfortable with the idea of a new response style.

8. If possible, try it out in a "safe" environment – ask a friend to help or even consider taping yourself! If at all possible, get some feedback.

9. If necessary, repeat 7 and 8 until you feel able to try new responses in a real life situation.

10. Try it!

11. Review your behaviour and how you felt – what was good, what could be changed?

12. Try 3 – 11 with different situations.

13. Family and Friends

Session 6

FAMILY AND FRIENDS

RNOH NHS TRUST
ACTIVE BACK PROGRAMME

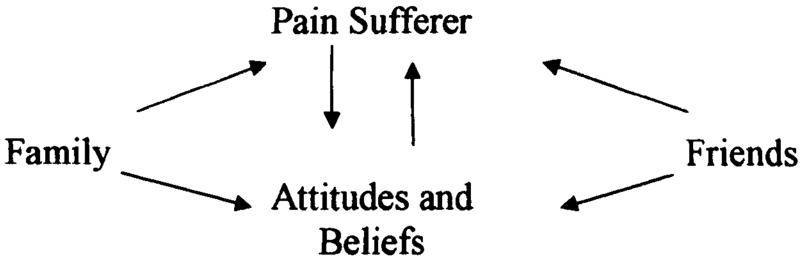
A.J. Lucas
Chartered Health Psychologist

Family and Friends

During this session we will consider the interactions of families and friends with the pain sufferer.

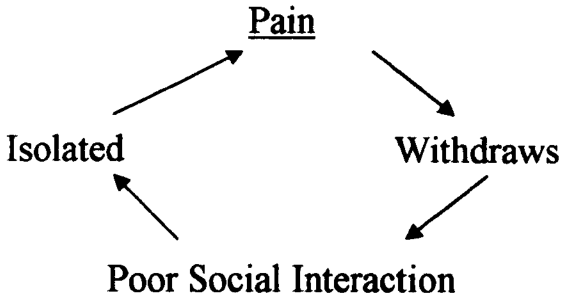
Families and Friends

Chronic pain cannot solely be viewed from the patient's perspective - having chronic pain has consequences for those closest to you. Your pain is not only a personal issue - the suffering of pain can have wide ranging effects. The pain can be viewed within a *systems approach*.



The pain may directly affect a relationship, but may also be conversely affected by that relationship - pain has an *interaction* with those around you.

The Influence of Pain on Relationships



How has your pain condition affected family life?

Marital conflict - Chronic pain can cause problems within a marriage - but were there problems prior to the pain?

Role changes - how has the change in roles affected the quality of relationships?

Withdrawal from family activities - what the effects and consequences?

How do family and friends view your pain?

There is very little information about how to cope with chronic pain, for both you *and* your partner. No one should underestimate the impact on a partner. How does a partner *adapt* to the pain?

How do your families feel about your pain? Do they mirror your feelings?

Do you take time to appreciate their situation and problems? Who cares for the carers?

The Influence of Others on your Pain

Those closest to you can be both supportive *and* maintaining of pain behaviours.

Your partner may think they are helping by excusing you of duties, but could they be reinforcing some beliefs about yourself - *"My pain stops me doing anything, I feel useless"*. They may only want to help - but what is the best way of *helping? What is the type of help being offered?*

Are those close to you, helping to exert control over the pain?

Can the pain dominate conversations? We know that talking about the pain helps to focus attention, while social interaction can help through distraction.

Do those closest to you smother or encourage?

Conclusions

So should you speak to friends and family about the pain?

There must a role for the education of others in pain issues.

It is very difficult to maintain a healthy balance between acknowledging and ignoring the pain.

Session 7

MAINTAINING CHANGE AND ACHIEVING GOALS

RNOH NHS TRUST
ACTIVE BACK PROGRAMME

A.J. Lucas
Chartered Health Psychologist

Why do people fail to achieve goals?

Boredom

Too hard

Stress – from illness, family, work etc.

Lack motivation

We all do it!!

Stages of Health Behaviour Change

1. Pre-contemplation

Individual has no intention to change or may not even be aware of problem.

2. Contemplation

Individual is aware of the problem and is thinking of doing something about it, but has not yet made a commitment to take action.

3. Preparation

Individual intends to change behaviour, but may not yet have begun to do so.

4. Action

Individual modifies their behaviour to overcome the problem, needs time and energy to

- Stopping the behaviour and
- Modifying ones lifestyle and environment to avoid reminders associated with undesirable behaviour.

5. Maintenance

Individual works to prevent slip ups and consolidates the gains they have made.

Think about the reasons why you slipped up.

Why bother changing – profit/loss analysis – what is in it for me and what will it cost me? Consider your beliefs and attitudes – what are your reasons for changing behaviour?

Role of **HIGH RISK SITUATIONS** – threatens sense of control and increases risk of slip up – try to avoid or confront high risk situations.

Role of **EXPECTATIONS** – failure to meet expectations may contribute to a slip up – are your expectations too high/unrealistic OR too low to be meaningful.

Think about "slip ups" and what led up to them – example of drinking alcohol – research suggests people start drinking again due to either frustration/anger in social situations or social pressures to resume drinking. People often say relapse occurred due to social difficulties, i.e. an argument with partner.

Role of **INFORMATION** – whose advice – is it credible?

What can be done to avoid slip-ups and maintain progress?

Goal Example – Going to gym three times a week.

1. Why have you not maintained?
2. Why is it difficult?
3. How do you feel?

4. What negative or irrational self-talk do you engage in?
5. Source of negative self talk ("Unless I go to the gym for two hour sessions three times a week it is pointless going at all").

Planning to reduce the risk of slip-ups.

- **Make a list of what might get in the way of continuing with your goal.**

- **What can you do to prevent slip-ups or how to get yourself back on track after a slip up.**

Setting goals

Be precise not vague – for example – avoid "I will exercise daily" – may be better to say "I will walk for 15 minutes each day after breakfast".

Set a realistic goal and three steps you need to take to reach that goal.

Example goal is to start an Art course at night school

Step 1 Find out about course in your area

Step 2 Consider which course most appeals to you and choose one!

Step 3 Apply to the college and prepare to start!

Maintaining your goal

1. Review slip ups.

2. Be aware of slipping – recognising a set back is occurring.

3. Avoid stress – practice relaxation that may encourage progress.

4. Review what events led up to the slip up.

5. Develop and practice appropriate coping strategies.

Use slip ups as opportunities to learn – why did it occur, how to prevent it happening again. A slip up does not mean you should abandon your goal – focus on what you have achieved and learn from the slip up.

Need to challenge self-defeating talk.

Monitor progress.

Don't be too hard on yourself – recognise and celebrate gains no matter how small.

Get family/friends involved – they may help you to maintain. Achieving a goal with a friend can help with motivation or in a group setting.

Changing other areas of lifestyle can help achieve your goal. For example to stop smoking – undertaking regular exercise/relaxation techniques.

Plan ⇨ **Initiate** ⇨ **Review**

Finally – Good Luck in maintaining and achieving your goals!

15. Active Back Programme Evaluation Questionnaires

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The Active Back Programme Review 1

In order for you to make the most out of this programme we have designed this questionnaire to see what you think of the programme.

How useful did you find these sessions?

	Extremely Useful	Very Useful	OK	Not Very Useful	Useless
Functional Activity	☐	☐	☐	☐	☐
Functional Anatomy of the Spine	☐	☐	☐	☐	☐
Exercise	☐	☐	☐	☐	☐
Healing Hurt or Harm	☐	☐	☐	☐	☐
Sport	☐	☐	☐	☐	☐
Goal setting	☐	☐	☐	☐	☐
Seating	☐	☐	☐	☐	☐
Posture	☐	☐	☐	☐	☐
Hydrotherapy	☐	☐	☐	☐	☐
Relaxation	☐	☐	☐	☐	☐
Pacing and Baseline Activity	☐	☐	☐	☐	☐
Learning to Change	☐	☐	☐	☐	☐
Understanding Pain	☐	☐	☐	☐	☐
Stress and Anxiety Coping Strategies	☐	☐	☐	☐	☐

How well were these sessions delivered?

	Excellent	Very Good	Good	Poor	Very Poor
Functional Anatomy of the Spine	☐	☐	☐	☐	☐
Healing Hurt or Harm	☐	☐	☐	☐	☐
Goal setting	☐	☐	☐	☐	☐
Seating	☐	☐	☐	☐	☐
Posture	☐	☐	☐	☐	☐
Relaxation	☐	☐	☐	☐	☐
Pacing and Baseline Activity	☐	☐	☐	☐	☐
Learning to Change	☐	☐	☐	☐	☐
Understanding Pain	☐	☐	☐	☐	☐
Stress and Anxiety Coping Strategies	☐	☐	☐	☐	☐

How well did you understand these sessions?

	Extremely Well	Very Well	OK	Not Very Well	Not At All
Functional Anatomy of the Spine	☐	☐	☐	☐	☐
Healing Hurt or Harm	☐	☐	☐	☐	☐
Goal setting	☐	☐	☐	☐	☐
Seating	☐	☐	☐	☐	☐
Posture	☐	☐	☐	☐	☐
Relaxation	☐	☐	☐	☐	☐
Pacing and Baseline Activity	☐	☐	☐	☐	☐
Learning to Change	☐	☐	☐	☐	☐
Understanding Pain	☐	☐	☐	☐	☐
Stress and Anxiety Coping Strategies	☐	☐	☐	☐	☐

Which Session(s) has made the most difference to you? Please state why.

....
....
....
....

Which session(s) do you feel has been the least helpful? Please state why.

....
....
....
....

How satisfied are you with the programme?

☐	☐	☐	☐	☐
Completely Satisfied	Very Satisfied	Satisfied	Not Very Satisfied	Unsatisfied

How has your group got along?

Excellent	Very Good	Good	Poor	Very Poor
☐	☐	☐	☐	☐

Any further comments

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