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Psychological Assessment and Treatment of the Pain Patient

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EDUCATIONAL OBJECTIVES

(1) Compare and contrast the traditional biomedical with the biopsychosocial model of illness. (2) Understand the relative importance of different sorts of psychological factors on the perception of pain and development of disability. (3) Appreciate the influence of culture, age, gender, and ethnicity on perception of pain, health care consulting, selection for treatment, and response to treatment. (4) Critically evaluate experimental and clinical approaches to the assessment of pain and disability, with consideration of the multidimensional nature of pain and the use of different methodologies. (5) Evaluate the social context of pain, including the role of the patient's spouse, family, and caregivers. (6) Understand behavioral observation approaches to assessing pain behavior and how significant others respond to pain behaviors. (7) Understand the utility of spouse-assisted and caregiver-assisted approaches to biopsychosocial intervention. (8) Appraise evidence for the nature and efficacy of cognitive-behavioral interventions for patients with established pain problems. Consider also possible negative side effects of psychological treatment. (9) Understand the factors influencing doctor/therapist communication. (10) Structure a clinical interview focusing on assessment of patient priorities, identification of therapeutic targets, and appraisal of obstacles to recovery. (11) Consider evaluation of change and assessment of outcome, from both a clinical and an occupational perspective. (12) Consider the influences of economic, occupational, and family factors on response to treatment. (13) Identify the potential for secondary prevention from both an individual and a "systems" perspective.

INTRODUCTION

Since the advent of the gate control theory (Melzack and Wall 1965), the importance of psychological factors in pain has been increasingly recognized. Clinical and experimental studies have offered new insights into the nature of pain perception and adjustment to disability. A movement away from traditional disease-oriented models of illness in favor of broader biopsychosocial perspectives has led to a shift from a primary focus on pain relief to a broader agenda of pain management, with particular emphasis on the behavioral and cognitive aspects of pain and pain-associated dysfunction. Psychological factors are important in the context of screening, assessment, and decision making and have become an integral part of the assessment of individuals with persistent pain. Cognitive-behavioral methods are effective in outcome of treatment (Morley et al. 1999) and are a cornerstone of modern pain management, whether delivered on an individual basis or within the context of interdisciplinary pain management (Main and Spanswick 2000). Recent studies have shown the powerful influence of psychological factors also in the development of disability (Linton and van Tulder 2001), and the cognitive-behavioral approach, in the context of self-directed reactivation, has proved superior to traditional, more passive, approaches to treatment. Finally, the perspective has broadened to include occupational as well as health care outcomes, leading to the incorporation of perceptions of work and work capacity within rehabilitation and work retention strategies. Although there are many facets of assessment and intervention, and with complex pain problems a "systems approach" may be required, it is becoming increasingly recognized that psychological factors specifically are the key

components in pain management, whether with a primary health care or with a primary occupational focus. The chapter will conclude with a discussion of the integration of sickness and disability management with strategies targeting the enhancement of resilience and optimization of performance.

THEORETICAL FOUNDATIONS

THE MULTIDIMENSIONAL NATURE OF PAIN

Modern conceptualizations of pain derive principally from the gate control theory (Melzack and Wall 1965) and its later derivatives (Melzack and Casey 1968). Pain is *not* merely the end product of a passive transmission of nociceptive impulses from a receptor organ to an area of interpretation. It is the result of a dynamic process of perception and interpretation of a wide range of incoming stimuli, some of which are associated with actual or potential harm and some of which are benign but are interpreted and described in terms of damage.

The gate control theory has stimulated a wide range of research, but its importance from the psychological point of view has been that it produced a testable model of how psychological factors could activate descending pain inhibitory systems, modulate nociceptive processing, and thereby modulate pain. It has offered a way of integrating concepts of pain behavior, both as a *response* to pain and as behavior that could come under environmental influences and control. Melzack postulated three distinct components of pain: sensory-discriminative, motivational-affective, and cognitive-evaluative. Recent neuroimaging techniques have confirmed such a complex model of pain encoding (Treede et al. 1999), showing, for example, that a large number of subcortical and cortical areas appear to process different aspects of pain in parallel.

The gate control theory has stimulated interest into the role of beliefs about pain, attention to pain, appraisal of its significance, fears about pain, and pain-related coping strategies. The theory has encouraged the investigation of the nature of pain-associated disability and has led to the development of biopsychosocial models (Waddell and Main 1998) that have attempted a wide integration of physical, psychological, and social perspectives.

FUNDAMENTAL PSYCHOLOGICAL MECHANISMS

Psychological factors have a wide-ranging effect on the perception of pain and its effects. There is now convincing evidence that central mechanisms can influence the perception of nociceptive signals from the periphery of the body (Woolf 1996). Perceptual differences in terms of both intensity and aversiveness may result in different parts of the brain becoming "energized." It is commonly observed clinically that pain "feels worse" when patients are feeling tired or depressed. Pain often seems to feel worse during the night when the brain has "less to do."

Research into memory for pain suggests that aversive pain memories may have a powerful influence on the perception of new pain stimuli (Price et al. 1997). Psychobiological investigations have demonstrated a wide range of conditioned peripheral and central responses to pain involving both physiological and biochemical events (Flor and Birbaumer 1994). The magnitude of response to painful stimuli changes with the duration of chronic pain conditions and may be mediated by attention (Eccleston 1995). Research has also shown that individuals differ not only in pain threshold, but also in their ability to discriminate pain of different qualities and intensities. The development of widespread cortical assembly activation and psychophysiological hyper-reactivity may be a result of neuroplastic change (Flor et al. 1997). However a recent study of patients suffering from shoulder pain (Vassiljen and Westgaard 1996) suggested that the perception of pain may be better explained by the subjects' perception of muscle tension than by the electromyographic activity in the muscle itself. The evidence for abnormalities of movement in chronic pain conditions is much more convincing than that for elevated resting baselines. Changes in these abnormalities are more closely related to change in fear of activity and pain self-efficacy beliefs (the relative confidence that one will be able to perform a movement despite the pain) than to the level of clinical pain (Watson et al. 1997).

It thus appears that the perception of pain bears a complex relationship to nociception, and a full understanding requires consideration both of central physiological mechanisms involved in coding the information in the brain and of secondary psychological processes affecting perception.

FROM PAIN TO PAIN BEHAVIOR

There are many different examples of pain behavior, ranging from the simple to the complex. Patients may communicate pain both verbally and nonverbally. Most therapists understand pain behavior (of whatever sort) simply as a response to pain and treat it as such. Since the 1970s, behavioral theorists have investigated the behavioral mechanisms involved in such treatment contexts, finding that the situation can be much more complex.

There are two major perspectives concerning pain behavior. Within the *classical conditioning* paradigm, pain behavior can be viewed simply as an unconditioned response to a pain stimulus (nociception). Through learning, however, conditioning can occur so that fearful patients may begin to show similar responses to situations in which they were injured. Even *memory* of the circumstances surrounding the injury can reproduce the pain. (The development of fear of hurting and harming can be understood within this paradigm.) As has been stated elsewhere, "fear of pain can become more disabling than pain itself" (Waddell et al. 1993), and many such influences can be observed during the course of therapy.

Persistence of pain behavior can also be understood in terms of its consequences. If it is successful in reducing pain or leads to pleasant consequences such as increased attention from a spouse (Romano et al. 1996), absence from a stressful job, or financial compensation, it is likely that the pain behavior will increase in frequency. The change has been brought about by *operant conditioning*. Successful avoidance of painful activity (such as a painful exercise program) can inhibit therapeutic progress. Interestingly, patients are often unaware of the mechanisms underpinning their behavior.

THE BIOPSYCHOSOCIAL MODEL OF PAIN AND DISABILITY

Pain is a symptom, not a sign, and therefore is multiply determined. In specific instances there may be a clear and specific indication for manipulation, but the dysfunction needs to be understood within a wider model such as the biopsychosocial model of pain and disability (Waddell et al. 1984; Turk 1996; Waddell and Main 1998).

At the heart of the biopsychosocial model is the assumption of an ongoing sensation that is nociceptive in nature or that is perceived by the sufferer as being painful. The patient's cognitions, i.e., what they think and understand about this sensation, will influence their emotional reaction to it. The behavior demonstrated by the individual at any point in time will be a product of his or her beliefs and emotional response to the pain and may in turn be influenced (reinforced or modulated) by the social environment in which the behavior takes place. The model offers a radically different way of understanding the nature of pain-associated incapacity.

THE INFLUENCE OF AGE AND GENDER

All forms of disability increase with age, and the proportion of individuals reporting *restricted activity* rises linearly until retirement age. To the extent that limitation in function is related to such changes, it is important to evaluate an individual's disability in comparison with a reference group of a comparable age.

The reasons for differences between men and women in perception of pain and pain response are not immediately apparent but seem unlikely to be explained simply by biological factors (Unruh 1996). The specific relevance of experimental pain findings for the understanding of clinical pain or its management has always always been problematic, and this is particularly true in the investigation of sex differences. Investigation of differences in response to pain by men and women would seem to require a broader biopsychosocial framework including a focus on gender role rather than the narrower biological construct.

THE SOCIAL AND CULTURAL CONTEXT OF PAIN

Arguably, one of the most important influences on the development of modern pain management has been the recognition that chronic illness needs to be understood in a social context. Pain behavior can also be viewed from a social learning perspective.

In the context of clinical pain management, the power of social influences can often be identified, particularly in the contexts of family interactions, and as an important aspect of the health care consultation process. A number of possible socialization mechanisms have recently been identified (Skevington 1997). However, individuals are seldom able to give a clear understanding of such mechanisms in their particular case. They will tend to recall significant events, and may be quite unaware of some of the social forces that have shaped their perception.

Cross-cultural differences are evident in many aspects on human behavior, and certainly in prevalence of illness and in health care usage. It is generally accepted that back pain is common in populations throughout

the world, but the interpretation of the experience and the associated pain behaviors seem to differ significantly, depending on cultural norms. Sanders et al. (1992) found differences in Sickness Impact Profile scores of patients seeking help for back pain at pain clinics in different countries. The provision of specialized services may in fact change perceptions of musculoskeletal symptoms and the significance attributed to them (Waddell 1998).

THE IMPORTANCE OF ECONOMIC AND OCCUPATIONAL FACTORS

Economic and occupational factors can exert a considerable influence on treatment seeking and outcome of treatment. Economic costs of pain can be considered at an individual as well as at a societal level. For a particular individual, the economic effects of pain and pain-associated incapacities can vary from the inconsequential to the catastrophic. The most powerful economic influences can be seen when the individual is compromised in his or her ability to work, but the economic impact on a particular individual will depend on a number of factors, such as current financial commitments, length of work loss, entitlement to various benefits, insurance in the event of sickness, and alternative sources of income.

In a sense, for a particular individual, the overall economic impact can be most simply understood in terms of the net costs of sickness. It is not uncommon to find distress bordering on panic and despair among individuals who perceive their job to be at risk because of their sickness record. Response to painful injury is affected not only by the perception of pain and expectation of outcome of treatment, but also by attitudes toward work and perceived entitlements in the event of work-related incapacity (whether temporary or permanent).

A wide range of work organizational characteristics have been associated with stress, ill health, and musculoskeletal disorders, but most studies to date have been unable to quantify either their individual importance or specific interactions. Nevertheless, the avail-

Table I
Work organizational factors most clearly
associated with occupational stress
and musculoskeletal disorders

High demand and low control
Time pressure/monotonous work
Lack of job satisfaction
Unsupportive management style
Low social support from colleagues
High perceived workload

able evidence provides most support for influence of the factors shown in Table I (Bongers et al. 1993; Vingard and Nachemson 2000), and it seems that workers' reactions to psychosocial aspects of work may be more important than the aspects themselves (Davis and Heaney 2000), with stress acting as an intermediary (Bongers et al. 1993).

It would appear that negative appraisals associated with ineffective coping strategies appear to lead to frustration, even anger, and can cause significant work stress, deterioration in health, and absence from work. According to Bongers (1993):

> Monotonous work, high perceived work load, and time pressure are related to musculoskeletal symptoms. The data also suggest that low control on the job and lack of support by colleagues are positively associated with musculoskeletal disease. Perceived stress may be an intermediary in the process.

Evidence now seems to be overwhelming that psychosocial factors influence musculoskeletal symptomatology and effect on work, but further prospective research is needed into the size of these effects. (Implications for the development of occupationally oriented pain management will be addressed in the final section of this chapter.)

BASIC FEATURES OF PSYCHOLOGICAL ASSESSMENT

THE PURPOSES OF PSYCHOLOGICAL ASSESSMENT

An adequate pain assessment needs to examine pain intensity, functional ability, mood and personality, pain beliefs and coping, medication usage, adverse effects, behavioral changes, and health care utilization. Chronic pain is a biopsychosocial phenomenon, and patients almost always have psychological issues associated with their suffering. What are the emotional and cognitive aspects and consequences of pain? Keefe et al. (1999) identified four basic purposes of the psychological assessment.

1. Diagnostic assessment. In some cases, patients are referred for assessment to determine whether they meet *Diagnostic and Statistical Manual* (DSM-IV) criteria for a mental disorder. Both questionnaires and structured interviews might be used in such instances.

2. Screening for medical treatment. Some physicians, particularly those undertaking invasive procedures such as surgery, may request assessment to see whether

there are psychological factors that might mitigate against intervention.

3. Assessment for individualized psychological intervention. Psychological treatment, such as psychotherapy, requires a complete assessment in order to understand the patient's cognitions, motives, and goals.

4. Assessment of suitability for pain management. Patients should be assessed in terms of specific psychological treatment objectives as well as possible obstacles to recovery (which may be social, economic, or occupational, as well as psychological). It is important also to address confusion or disaffection regarding previous treatment.

THE CONTEXT OF A PSYCHOLOGICAL EVALUATION

Patients are often resistant to the idea of psychological assessment or intervention. It is important to convey to them, in a nonaccusatory manner, that no matter what the cause of the pain, there are likely to be behavioral and emotional consequences that would merit consideration.

Ideally, the psychological assessment should be performed at the same time as the medical evaluation. Clearly this is not feasible for acute pain conditions or even for many single-modality medical practices, although physicians and other health care providers should add some of the more basic forms of psychological assessment to their diagnostic procedure. Combining the medical and psychosocial assessment helps to prevent the patient from developing the belief that the physician thinks the pain complaint is "imaginary." Ideally, the physician and psychologist should meet with the patient (and, where possible, the spouse or significant other) in order to explain the rationale and results of their evaluations and to communicate their desire to address both the medical and psychological dimensions of the patient's pain problems.

As Keefe et al. (1999) described in detail, several basic elements are common to almost any psychological assessment: (1) Clinical history reported by the patient. (2) General personality traits and dispositions. (3) Current level of somatic concern, depression, and anger. (4) Report of pain and functional limitations. (5) Preliminary behavioral analysis. (6) Pain coping strategies. (7) Beliefs about injury, pain, and treatment outcome. (8) Social, economic, and occupational influences on symptom presentation.

BASIC ELEMENTS OF A PSYCHOLOGICAL EVALUATION

We recommend five areas for particular attention. Careful gathering of information about the psychosocial factors that influence the patient's pain experience will help to determine the nature of the interventions that are most likely to have a beneficial outcome.

PAIN EVALUATION

Patients arrive at the clinic with highly complex collections of perceptions, thoughts, and behaviors. Assessments can be brief, at least initially, focusing on pain intensity and location, but later many aspects of the pain and its impact on the individual's personal, social, and vocational life may require careful analysis.

Following the earlier gate control theory (Melzack and Wall 1965), Melzack (1975) devised the widely used McGill Pain Questionnaire (MPQ) and later, the short-form MPQ (Melzack 1987). This questionnaire consists of 15 descriptors (11 sensory and 4 affective) that are rated on an intensity scale as 0 = none, 1 = mild, 2 = moderate, or 3 = severe. It serves as a relatively simple yet powerful way to assess the main characteristics of the patient's pain experience.

Even more basic assessments can be highly revealing. There are a number of different "pain thermometers," but the simple visual analogue scale (VAS) in the form of a 10-cm line has been used with success in many populations. Recently, Chibnall and Tait (2001) compared the psychometric properties of four diverse scales in a group of hospitalized older adults, finding success with a five-point verbal scale, a seven-point faces scale (happy, sad, etc.), and horizontal and vertical VAS (divided into boxes), although the horizontal VAS had the best validity. Additional information about variation in pain intensity, pain quality, or spatial characteristics and the relationship with medication, mood, and activity can also be gathered from pain diaries. Diaries can be used both to clarify pain locations and also differentiate them in terms of intensity and qualitative features (Escalante et al. 1996).

ASSESSMENT OF PERSONALITY TRAITS AND PREDISPOSITIONS

Psychological methods are often used to help in both the diagnosis and treatment of chronic pain. Psychological tests such as the Minnesota Multiphasic Personality Inventory (MMPI) are employed to identify

personality disturbances that may be predisposing factors in the onset of the chronic pain disorder or else are consequences of it. It is often difficult to distinguish between preexisting, aggravated, and causative psychological conditions. The original MMPI was established as a test of psychopathology, and its norms are based on psychiatric patients. Its use for medical patients is a common but improper practice. It has two particular difficulties. First, common symptoms of pain disorders inevitably boost the scales used to diagnose a neurotic disorder. Second, because individual items contribute to the scores on several scales, the scales are not independent. As Smythe (1984) observed: "The MMPI is not an appropriate scale for use in patients with organic diseases causing pain or disability." While there may be a psychological component in chronic pain disorders, personality tests with such built-in biases must be interpreted with extreme caution.

The situation is not much improved by the development of the MMPI-2. Main and Spanswick (1995b) concluded that "even in its latest incarnation, the MMPI is overly dependent on outdated concepts of psychopathology, and the recent critiques of the MMPI, while illuminating, have failed to address a more fundamental set of problems with personality assessment, which inherently constrain and limit its utility."

Recent, briefer tests that are specifically aimed at psychological assessment of pain patients hold more promise for providing an assessment of psychological state, particularly where there is a possibility of referral to a psychologist for further evaluation. One such test is the Pain Patient Profile (P-3) (Tollison 1993), which requires about 20 minutes for completion of its 44 items.

Another test often used with pain patients is the Symptom Checklist-90 Revised (SCL-90R) (Derogatis et al. 1976). This multidimensional symptom report inventory lists 90 symptoms and asks patients to rate how much discomfort the problem has caused in the past. It defines nine primary dimensions: somatization, obsessive-compulsive disorder, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism, as well as global distress. However the fact that individuals scoring high on one scale also score high on others (Hardt et al. 2000) makes interpretation problematic. Bernstein et al. (1994) found that the somatization score, in particular, was a good predictor of clinical outcome. Dahlstrom et al. (1997) found that a dysfunctional personality profile was associated with treatment failure, conservative or surgical, and Trief et al. (2000) found that poor clinical outcome and failure to return to work were predicted by presurgical anxiety and depression.

The Neuroticism Extroversion Openness Personality Inventory (NEO-PI) is another common self-report instrument. This five-factor instrument assists in establishing a relationship with the patient and in customizing treatment techniques and goals to the individual's intrapersonal and interpersonal dynamics. Tanum and Malt (2000) recently reported that moderate to high neuroticism scores predicted poor response to antidepressant treatment of patients with functional gastrointestinal disorders.

Structured psychiatric interviews can be used to supplement psychometric assessments. Both the Diagnostic Interview Schedule (DIS) and the Structured Clinical Interview for DSM-IV (SCID), which are based on DSM-IV criteria, produce reliable and valid diagnoses, but need to be administered by a clinician or trained mental health professional. Although there are similarities among patients with chronic pain, there is no particular pain-prone personality. Investigations of this type, however, often cannot clarify causal relationships. However, in a prospective study, Gatchel et al. (1995) found that the presence of a personality disorder identified by the SCID and scores on a hysteria scale of the MMPI were associated with chronic pain disability, indicating the importance of psychosocial factors in rehabilitation.

COGNITIVE FACTORS

Research has shown that patients' beliefs and appraisals exert an important influence on response to treatment and development of disability. Individuals will vary to a considerable degree in the strategies that they use to deal with their pain. A wide range of questionnaires evaluate four basic types of cognitive factor: pain control beliefs, self-efficacy beliefs, fear avoidance beliefs, and pain coping styles or strategies (linked with pain behavior).

Pain control beliefs. Beliefs about the nature of pain and its controllability appear to exert an important influence on the outcome of treatment. Williams and Thorn (1989) developed the Pain Beliefs and Perceptions Inventory (PBAPI) which assesses three dimensions of pain beliefs: self-blame, perception of pain as mysterious, and beliefs about the duration of pain. These pain beliefs were related to subjective pain intensity, treatment compliance, self-esteem, somatization, and psychological distress. Subsequent studies showed that beliefs that pain is enduring and mysterious tended to be held by patients who were less likely to use adaptive cognitive coping strategies, more likely to catastrophize, and less likely to rate their coping strategies as effective in controlling and decreasing pain (Williams and Keefe 1991).

Other scales measure specific beliefs about pain control. The Pain Locus of Control Scale (PLOC) consists of three scales: internal control, control by powerful others such as physicians or family members, and chance. Toomey et al. (1993) reported that pain clinic patients felt that they lacked predictable control of their pain. Crisson and Keefe (1988) assessed both locus of control and coping skills, noting that patients who viewed outcomes as controlled by chance factors such as fate or luck tended to rely on maladaptive pain coping strategies and rated their abilities to control and decrease pain as poor. These and other studies suggest that locus of control predicts treatment outcome; it would be important to see whether there are ways to change locus of control and thereby improve the likelihood of treatment success. A number of recent studies have shown that multidisciplinary and cognitive-behavioral treatment of pain can reduce reliance on powerful others and on chance factors and increase patients' sense of personal control over their pain.

Self-efficacy beliefs. Behavior is, to a large extent, a self-fulfilling prophecy. Asghari and Nicholas (2001) have examined the relationship between pain self-efficacy beliefs and a range of pain behaviors. Over a 9-month study period the subjects' confidence in their ability to perform a range of tasks despite pain predicted total pain behavior and avoidance behavior beyond the possible effects of pain intensity, pain chronicity, age, gender, physical disability, depression, neuroticism, and catastrophizing.

Various scales are used to assess patients' confidence that they can manage their pain. One such is the Arthritis Self-Efficacy Scale (ASES) (Lorig et al. 1989), in which patients are presented with a list of potentially challenging behaviors (decreasing pain, getting into and out of an automobile) and are asked about their certainty that they can perform them. Scores are obtained for self-efficacy in managing pain, engaging in physical functions, and managing such symptoms as mood and fatigue. It remains to be seen, however, to what extent treatment programs can enhance the self-efficacy of patients with low scores.

Fear-avoidance beliefs. Crombez et al. (1999) identify a number of questionnaires that have been developed to quantify pain-related fears. One is the Fear-Avoidance Beliefs Questionnaire (FABQ) (Waddell et al. 1993), which was designed to concentrate on patients' beliefs about how physical activity and work affect low back pain. Another, the Tampa Scale for Kinesiophobia (TSK) (Kori et al. 1990), focuses on fear of reinjury following movement. Several studies have found that such pain-related fear measures are better predictors of disability and behavioral performance than are measures of general negative affect or of general negative pain beliefs (e.g., pain catastrophizing). Vlaeyen and Linton (2000) believe that pain-related fear includes negative appraisal of internal and external stimuli, negative affectivity, and anxiety sensitivity, giving rise to avoidance behaviors, hypervigilance to internal and external illness information, muscular reactivity, deconditioning, and guarded movement. We recommend consideration of pain-related fear and avoidance as part of any treatment program for patients with musculoskeletal pain.

Coping styles and strategies. Many patients have negative expectations about their ability to exert control over their pain. These are often seen in the form of catastrophizing self-statements that focus on negative aspects of the pain and suggest that the individual is not hopeful about a positive change in his or her situation. One goal of cognitive-behavioral therapy is to replace such catastrophizing with active coping self-statements, in which the patient focuses, instead, on strategies for actively dealing with painful experiences (Haythornthwaite et al. 1998).

The Coping Strategies Questionnaire (CSQ) (Rosenstiel and Keefe 1983) is a 44-item questionnaire that assesses the frequency that patients use each of six cognitive coping strategies (diverting attention, reinterpreting pain sensations, making coping self-statements, ignoring pain sensations, praying and hoping, and catastrophizing) and one behavioral strategy (increasing activity) and determines the perceived success of these strategies in controlling pain.

Numerous studies have examined the factor structure of the CSQ. Burckhardt et al. (1997), for example, found three distinct factors: cognitive factors, active factors, and pain control and rational thinking. Fibromyalgia patients, prior to a multidisciplinary treatment program, were likely to use self-empowerment statements, ignore pain, and attempt to increase their activity level, and nearly all engaged in catastrophizing. Afterwards, evaluations indicated that their ability to control and decrease pain had increased significantly. Geisser et al. (1994) showed that praying/hoping and catastrophizing were related to poorer adjustment to chronic low back pain, that ability to control and decrease pain were related to better adjustment, and that catastrophizing appeared to be a separate construct from depression.

The particular importance of catastrophizing has been recognized (Sullivan et al. 2001), and shorter scales, such as the Pain Catastrophizing Scale (PCS) (Sullivan et al. 1995) have been developed to measure it. Scores on catastrophizing and rumination were found to be significant predictors of patients' reported pain intensity, perceived disability, and later employment

status (Sullivan et al. 1998).

The Chronic Pain Coping Inventory (CPCI) (Jensen et al. 1995) has eight main subscales that measure coping strategies that are frequently targeted for change in interdisciplinary pain treatment programs. Tan et al. (2001) have found that the CPCI scales, particularly the one on guarding, appear to predict disability, while the CSQ catastrophizing scale is more strongly related to depression.

EMOTIONAL FACTORS

In clinical contexts, the presentation of a pain complaint is frequently accompanied by emotional features, of which the most common are anxiety, depression, and anger. Studies have shown that mood, particularly anxiety, can influence the experience and expression of pain. Wade et al. (1990), for example, showed that anxiety and frustration predicted the unpleasantness of clinical pain after controlling for pain intensity and that anger is an important concomitant of the depression that pain patients may experience.

The Pain Anxiety Symptoms Scale (PASS) (McCracken et al. 1992) is a 40-item self-report measure that consists of four subscales measuring aspects of pain-related anxiety and avoidance: cognitive anxiety, fearful appraisal, escape avoidance, and physiological anxiety. Strahl et al. (2000) obtained data showing that pain anxiety, along with contributions of self-efficacy and coping strategies, strongly determines the physical, social, emotional, and role functioning in chronic rheumatoid arthritis patients. Burns et al. (2000) found that PASS scores correlated negatively with the amount of weight lifted and carried during a physical capacity evaluation and that they accounted for additional variance when measures of trait anxiety, depression, and pain severity were controlled. They suggested that patients with high PASS scores might have a fear of injury that causes them to avoid potentially painful physical exertion.

BEHAVIORAL FACTORS

Pain may be reported, observed, or identified using structured naturalistic or clinical assessment. Stiff, guarded movements, pain-avoidant responses, and facial expressions may signal that pain is being experienced. Extensive literature describes attempts to identify pain-specific nonverbal responses, particularly in children (Breau et al. 2001), but a number of different measures also have been developed specifically to assess pain behavior in adults.

Behavioral rating scales. Behaviorally based interventions require careful assessment, and a number of observation schedules have been developed. Such scales are used to rate the videotaped observations described below but can also be used to code naturally occurring behaviors. These scales are merely adaptations of observational scales that can be used for many other purposes. As mentioned above, the "diary" format enables the accurate recording of the incidence of such behaviors and their relationships with other events. The information can therefore be used for "functional analysis." Although sometimes highly informative, such methods are not practicable in typical outpatient clinical practice, and several more clinically based instruments have been developed.

Video-based or structured observation. Perhaps best known is the Behavioral Observation Test. Keefe and Block (1982) and Keefe et al. (1984) described a system for evaluating the occurrence of five specific behaviors—guarding, bracing, rubbing, grimacing, and sighing—in a group of low back pain patients undergoing physical examination. The test consists of a 10-minute videotaped analysis of patients going through a series of movements. Such behavioral observation protocols have been validated in a number of settings and provide an important and ecologically valid supplement to the more common textual assessment tools. It has been suggested, however, that naturalistic observation may not allow observation of tasks sufficiently strenuous to precipitate pain behavior. A task-oriented measure of pain behavior requiring the patient to perform a series of tasks (such as lifting, carrying, and stair-climbing) has been devised (Watson and Poulter 1997). This measure has proved reliable in a pain management setting and seems to address some of the limitations in the other methods.

Behavioral (nonorganic) signs. The behavioral signs test (also known as the "nonorganic signs" test; Waddell et al. 1980) is a widely used measure of pain behavior in clinical practice. It differs from the behavioral observation test in that pain behavior is elicited during a clinical examination. The test was devised originally to identify "nonorganic" components in patients presenting with nonspecific low back pain. The signs were found to be clearly separable from other physical signs and to correlate highly with measures of psychological distress. They were conceptualized originally as psychological screeners, with the caveat (as with the behavioral symptoms) that isolated signs should not be overinterpreted. The fact that these nonorganic factors have been misused and misinterpreted as indicators of malingering has prompted a reappraisal of their use (Main and Waddell 1998).

However, the persistence of pain can produce more wide-ranging and devastating effects on patients. Such

patients are characterized not by isolated or specific indicators of pain behavior but by an entire pattern of invalidism, described as a chronic pain (or pain behavior) syndrome (Main and Spanswick 1995a), or, where marked psychological features are present, as a psychologically mediated chronic pain syndrome (Main 1999).

STRUCTURE AND CONTENT OF THE PSYCHOLOGICAL INTERVIEW

THE NATURE OF COMMUNICATION

Good communication is a prerequisite for effective pain assessment. A number of strategies that are likely to enhance effective communication are illustrated in Table II. The information in this section is adapted from Main and Spanswick (2000).

Patient objectives for interview. Almost all patients, if given a choice, would elect a cure over and above all other possible outcomes. By the time chronic pain patients are referred to pain clinics, however, they may no longer believe that a cure is possible, and may present with a number of other, or additional, requirements. Some of the most important patient objectives are obtaining a cure or symptomatic relief; seeking diagnostic clarification; seeking reassurance; seeking "legitimization" of symptoms; and expressing distress, frustration, or anger.

Factors affecting communication. Communication can be viewed from two distinct perspectives; either from a technical sociopsychological perspective, focusing primarily on the nature of the communication process, or from a psychotherapeutic perspective, in which the emotional components of the doctor-patient relationship become the key ingredients of the therapeutic exchange.

Table II
Strategies for effective communication

Develop and apply competent listening skills
Carefully observe the patient's behavior
Attend not only to *what* is said but also *how* it is said
Attempt to understand how the patient feels
Offer encouragement to disclose fears and feelings
Offer reassurance that you accept the "reality" of their pain
Correct misunderstandings or miscommunications about the consultation
Offer appropriate challenge to negative thoughts (such as catastrophizing)
Appraise patients' general social and economic circumstances
Include assessment and involvement of partner/significant other where possible

Influences on professional judgment. Clinical decision making requires the integration of information of bewildering complexity. Even in the assessment of the so-called objective physical signs, clinicians can vary considerably in their judgment. There are two principal types of influence on clinical judgment: (1) technical accuracy, involving accurately identifying specific features, estimating their severity or significance, and integrating them into an overall clinical judgment; and (2) prejudicial bias in terms of the patient's clinical history or characteristics (such as age, race, and gender).

Patient factors affecting self-disclosure. Clinical judgment must be based on the best possible quality of information. The richest source of information is the patient. Patients' perception of their symptomatology and the interpretation they place on it are the cornerstones of modern pain management. Elicitation of the impact of pain on self-confidence, on relationships with others, on physical intimacy, and on quality of life requires sensitivity on the part of the assessor. It is important to be aware of a number of factors that can inhibit self-disclosure, such as patient expectations, patient misunderstandings, the nature of previous consultations, and emotional reactions.

Overview of the nature of communication. It is hard to overemphasize the importance of focused, sensitive, and skilled communication in the assessment of chronic pain patients. In most professions, such skills are not taught to a satisfactory level. In patients presenting with psychologically mediated chronic pain syndromes, attention to the communication process itself is as fundamental as is the use of magnetic resonance in the determination of structural damage.

THE RELATIVE IMPORTANCE OF DIFFERENT KINDS OF PSYCHOLOGICAL INFORMATION

In undertaking psychological evaluation, it is important to be clear about the purpose of the task. There is no all-embracing psychological tool or even method of assessment. It has been increasingly recognized not only that assessment is context-specific, but that tools must be validated specifically for the task in hand. The degree of precision required for research purposes may not be possible in routine clinical practice. Several simple assessment tools are available, but comprehensive evaluation of chronic pain patients requires specialist training. There will always be a need for careful and systematic assessment in the elucidation of fundamental pain mechanisms and in response to treatment. Assessment in the context of clinical decision making, selection for treatment, and design of therapeutic interventions is

still poorly understood. The shift in purpose of assessment from identifying psychopathology to determining targets for intervention and obstacles to improved function or recovery offers further challenges in terms of psychological assessment.

PSYCHOLOGICAL TREATMENTS FOR PERSISTENT PAIN

In this section we provide an overview of psychological treatments for persistent pain. To illustrate the range of psychological treatments, we describe four psychological treatment approaches: operant behavioral treatment, cognitive-behavioral treatment, biofeedback training, and emotional disclosure. The conceptual background, key components, and efficacy of each treatment approach are discussed. This section ends with a discussion of three important issues in the psychological treatment of pain: reimbursement for services, alternative formats for delivering treatment, and involving partners and family members in treatment.

OPERANT BEHAVIORAL TREATMENT

Conceptual background. Treatment programs for pain management based on operant conditioning principles have been used for over 25 years (Fordyce et al. 1973). These programs are based on the theory that, in some patients having persistent pain, maladaptive pain behavior patterns (e.g., inappropriate bedrest, excessive pain-avoidant posturing, or prolonged talking about pain topics) can be maintained by positive reinforcements (e.g., excessive attention from an overly solicitous spouse) (Fordyce 1976). Patients who are considered candidates for operant behavioral treatment are those whose pain behavior appears to be excessive or inappropriate in view of the extent of underlying tissue damage. Operant behavioral treatment programs have two major goals: (1) to increase "well" behaviors, and (2) to decrease pain behaviors.

Key components of treatment. Because operant behavioral therapists view behavior change as dependent on the patient's environment, treatment ideally is carried out in a specialized treatment facility where the social environment can be programmed to achieve these goals (Fordyce 1976; Williams et al. 1996). Staff members on these units are trained to use social reinforcement techniques in which they attend to and praise patients for engaging in adaptive, "well" behaviors (e.g., participation in physical activities) and to minimize attention given to maladaptive pain behaviors (Fordyce et al. 1973). If treatment cannot be carried out in such a facility, then the patient's spouse and/or family members need to be involved in treatment and trained in how to use social reinforcement techniques (Turner and Clancy 1988).

Behavioral activation is a key component in operant behavioral treatment programs. The emphasis often is on increasing the patient's "uptime," i.e., time spent up and out of the reclining position (Fordyce 1976). Patients are given daily "uptime" quotas (e.g., being up for 6 hours) that are gradually increased over the course of the program. This approach to graded activation is often quite successful and can be used to increase patients' tolerance for a variety of more specific activities (e.g., sitting, writing). Another important target in behavioral activation is increasing patients' level of involvement in exercise regimens designed to increase aerobic conditioning and muscle strength. Simple graphs are often used to provide feedback to patients and staff regarding improvements in exercise goals such as number of repetitions of each exercise or time spent exercising (Fordyce 1976).

The technique of *shaping* is central to the operant behavioral treatment approach (Fordyce 1976). Shaping involves rewarding successive approximations to a desired goal. A patient who desires to return to his job, for example, might first be reinforced for meeting the goal of spending time up and out of the reclining position, later reinforced for spending time doing volunteer activities or a job simulation task, and finally reinforced for spending progressively longer periods of time working on the job. When using shaping it is important to diversify the types of reinforcements given (e.g., social approval, public posting of a graph showing progress, or a new pen to use on the job) and to vary the amount and timing of reinforcement (i.e., an intermittent schedule of reinforcement, rather than continuous reinforcement).

For patients who need detoxification in operant behavioral treatment programs, pain medications are delivered on a time-contingent as opposed to a p.r.n. (as needed) schedule, and the amount of medication is gradually reduced (Fordyce 1976). The rationale for this is that a time-contingent schedule (e.g., taking a standard dose every 6 hours) breaks learned associations between high levels of pain behavior and the delivery of opioid medications. Research has shown that the use of time-contingent schedules of medication during detoxification leads to lower pain ratings and higher mood ratings than a p.r.n. schedule (White and Sanders 1985.)

Treatment efficacy. The earliest reports of operant behavioral treatment were uncontrolled single-group studies that documented pre- to post-treatment improvements in patients participating in specialized inpatient programs (e.g., Fordyce et al. 1973; Cairns et al. 1976

Anderson et al. 1977). These reports indicated that operant behavioral treatment was associated with substantial improvements in activity level and exercise tolerance and with statistically significant, though more modest, reductions in pain. More recently, a number of methodologically rigorous, randomized clinical trials of operant behavioral treatment have been carried out (Kerns et al. 1986; Turner and Clancy 1988; Turner et al. 1990; Nicholas et al. 1991; Radojevic et al. 1992; Vlaeyen et al. 1996). A recent meta-analysis of these studies (Morley et al. 1999) found that, when compared to waiting-list control conditions, operant behavioral treatment produced significant improvements in pain experience, mood/affect (other than depression), social role functioning (reduced interference), and pain behavior.

COGNITIVE-BEHAVIORAL TREATMENT

Conceptual background. The cognitive-behavioral approach views pain as a complex and multidimensional experience that is affected not only by underlying tissue damage, but also by thoughts (cognitions), feelings (emotions), and behavior (Turk et al. 1983; Bradley 1996). This approach integrates concepts and principles from operant behavioral theory, cognitive psychology, and cognitive therapy. Inherent in the cognitive-behavioral approach is a systems theory perspective that maintains that changes in one domain of the pain experience (e.g., cognitions) can influence changes in other domains (e.g., emotions and behavior.) Thus, a patient whose thinking is dominated by catastrophic ideation about the future is likely to feel depressed and to be much less actively involved in self-help efforts. Cognitive-behavioral treatment programs are appropriate for patients having both disease-related pain and nonmalignant pain conditions (Bradley 1996). These programs are designed to reduce pain, improve psychological functioning, and decrease physical disability.

Key components of treatment. Cognitive-behavioral treatment programs tend to be eclectic; typically they provide training in a wide array of pain coping strategies (Bradley 1996; Keefe and Caldwell 1997). This eclectic approach is important because it provides patients with choices that enhance their sense of control and helps therapists tailor the program to the patient's needs. Thus, most cognitive-behavioral treatment programs provide patients with a "menu" of cognitive and behavioral skills for coping with pain. Throughout treatment, cognitive-behavioral therapists emphasize the importance of regular, daily practice of coping skills in the acquisition and maintenance of coping skills (Keefe and Van Horn 1993).

One of the most important cognitive skills is cognitive restructuring (Beck et al. 1979; Beck 1995; Beck and Liese 1998). This skill, derived from the cognitive therapy research conducted by A. Beck and others, teaches patients to recognize the relationship between overly negative cognitions (e.g., "I'll never be able to cope with this pain") and mood changes (e.g., increased anxiety and depression) (Beck et al. 1979; Beck 1995; Butler and Beck 2001). Using simple self-monitoring forms, patients are trained to identify cognitive distortions (e.g., catastrophizing—the tendency to assume the worst possible outcome) that characterize their thinking about themselves, others, or the future. They then are taught how to challenge such thinking and replace it with more realistic and appropriate thought patterns (e.g., "It may be hard to cope with this pain, but there are things that I can do to deal with it").

Techniques that teach patients to divert attention away from pain are also a central component in cognitive-behavioral treatment (McCaul and Mallott 1984; Keefe and Caldwell 1997). Pleasant imagery exercises emphasize the importance of engaging all of the senses in the image (e.g., for a beach image, the patient should imagine hearing the sound of the waves, seeing the blue sky, feeling the warmth of the sand, etc.). Patients also are often typically taught how to use counting strategies (e.g., counting backward slowly from 10 to 1) to distract attention from pain. Some patients find reinterpretation strategies (Turk et al. 1983), in which they think of the pain as a different sensation such as cool or warm, to be very helpful in diverting attention away from pain.

Progressive relaxation training (Bernstein and Borkovec 1973; Arena and Blanchard 1996) is probably the most common behavioral technique used in cognitive-behavioral treatment. In progressive relaxation training, patients learn to relax their muscles by slowly tensing and then slowly relaxing major muscle groups. Patients initially are trained in a series of tense-relax exercises by the therapist and then practice these exercises at home on their own. Audiotapes are often used to structure home practice sessions, which typically last from 20 to 30 minutes. Once patients master the ability to relax in the home setting, they are taught strategies for applying relaxation skills in more challenging situations. Brief relaxation techniques that take less than a minute and involve scanning muscles and letting tension go are often used to enhance generalization of learned relaxation skills to daily situations where pain is problematic (Arena and Blanchard 1996).

Another behavioral coping skill widely used in cognitive-behavioral treatment is training in time management strategies. Activity-rest cycling (Keefe et al. 1996)

teaches patients how to avoid overdoing activities that are painful (e.g., prolonged sitting) by breaking these activities up into periods of moderate activity (e.g., 30 minutes of sitting) followed by a rest break (10 minutes of reclining). Over time, patients use activity-rest cycling to gradually increase the amount of time they are engaging in the target activity (e.g., increasing sitting time from 30 to 40 to 50 minutes, and so on) and gradually reduce the time they spend resting (e.g., to 2 to 5 minutes of reclining).

Treatment efficacy. Of the current psychological treatments for chronic pain, cognitive-behavioral therapy is the most widely studied (Morley et al. 1999). Numerous randomized, controlled studies of this treatment approach have been conducted, and some of these studies have been quite rigorous methodologically. Recent systematic reviews and meta-analyses have documented the efficacy of cognitive-behavioral therapy (Flor et al. 1992; Turner 1996; Compas et al. 1998; Morley et al. 1999). The most comprehensive meta-analysis (Morley et al. 1999) found that, when compared to a waiting-list control condition, cognitive-behavioral therapy had significant effects on all of the domains examined including pain experience, mood/affect, cognitive coping and appraisal, pain behavior, physical fitness, social role functioning, and use of the health care system. The authors concluded that "active psychological treatments based on the principle of cognitive-behavioral therapy are effective."

BIOFEEDBACK TRAINING

Fundamental mechanisms. Biofeedback involves providing persons with feedback about physiological responses of which they are not normally aware in order to enhance their ability to control them (Arena and Blanchard 1996). Electromyographic (EMG) biofeedback about muscle tension is often used in pain management, based on the rationale that excessive tension can contribute to increased pain (Keefe and Gil 1986). Another common type of feedback used in migraine headache applications is thermal biofeedback, which provides information about blood flow changes (Arena and Blanchard 1996). Although biofeedback is based on the theory that changes in physiological responding can produce changes in pain, research suggests that cognitive changes occurring during biofeedback, specifically an enhanced sense of control, play an important role in symptom relief (Holroyd et al. 1984). Biofeedback has been used in the treatment of a wide variety of medical conditions including painful disorders such as migraine headache, tension headache, and low back pain.

Treatment techniques. Biofeedback training involves three steps (Gil et al. 1988). The first step, conducted in the initial training session, is familiarizing the patient with biofeedback. The patient is seen in a laboratory environment, and sensors are placed so as to record relevant physiological responses (e.g., upper trapezius muscle activity in a patient with a painful neck muscle spasm). A demonstration is given to show the patient that the biofeedback signal changes in proportion to changes in the target physiological response. Usually the patient is provided with two types of feedback about the physiological response: visual feedback in the form of a meter or light bar display, and auditory feedback in the form of tones that rise and fall in pitch. The second step, typically conducted over a series of four to eight weekly sessions, is laboratory biofeedback training. In these sessions, patients learn to use the feedback to produce progressively greater control over the target physiological response. To assist patients in controlling their physiology, training in relaxation strategies (e.g., progressive relaxation training) is often provided. The third step, conducted over the last two to three training sessions, focuses on learning to generalize learned skills to the daily environment. To facilitate generalization, the therapist might outfit the patient with a portable biofeedback unit and expose the patient to a range of daily activities that might be difficult or painful (e.g., climbing stairs, walking, and getting in and out of the car). When it is not possible to expose patients to stimuli that trigger pain (e.g., work stressors), exposure can be done in the imagination. The goal during generalization training is for the patient to learn to maximize control over the target physiological response in a wide range of daily settings.

Treatment efficacy. The strongest and most consistent evidence for the efficacy of biofeedback training in the management of persistent pain has come from studies of patients having headaches (Holroyd and Penzien 1990, 1994; Compas et al. 1998). Thermal biofeedback and EMG biofeedback training are both efficacious in the treatment of migraine headache (Compas et al. 1998; Holroyd and Penzien 1990). Similar biofeedback protocols are effective in treatment of tension headache (Holroyd and Penzien 1994.) The efficacy of biofeedback for low back pain is inconsistent with some more recent controlled studies demonstrating positive results in terms of pain relief (e.g., Flor and Birbaumer 1993; Newton-John et al. 1995) and older studies reporting modest reductions (Bush et al. 1985) or no changes in pain (Nouwen 1983).

PRIVATE EMOTIONAL DISCLOSURE

Conceptual background. Private emotional disclosure is one of the most recently developed psychological interventions for patients having persistent pain (Kelley et al. 1997). In private emotional disclosure, patients are asked to privately talk or write about difficult, stressful events and to describe their thoughts and feelings. This approach is based on studies by Pennebaker and others that demonstrate that the disclosure of traumatic and difficult events or experiences can produce substantial improvements in outcomes (Pennebaker 1992; Greenberg et al. 1996). Benefits of private emotional disclosure have included reductions in the number of symptoms or problems, lower health care utilization, improved work attendance, and enhanced immune functioning (Pennebaker and Beall 1986; Pennebaker et al. 1988; Greenberg and Stone 1992; Pennebaker 1992; Esterling et al. 1994; Greenberg et al. 1996).

Emotional disclosure is likely to benefit patients with persistent pain for several reasons. First, patients with pain often have high levels of stress, and many report that their pain is reactive to stress. Second, many patients with pain have experienced traumatic events such as physical or sexual abuse. Negative emotions related to these events may increase pain and psychological distress. Third, some patients with pain are inhibited about talking about negative thoughts and feelings and have difficulty describing their feelings to others.

To our knowledge, the efficacy of private emotional disclosure has been tested only in patients having pain due to rheumatoid arthritis (Kelley et al. 1997; Smyth et al. 1999). We suspect, however, that this psychological treatment might be particularly helpful in patients for whom stress plays a key role in persistent pain.

Treatment techniques. The treatment process for private emotional disclosure is relatively straightforward. The patient is asked to spend 30 minutes each day of the disclosure intervention either talking into a tape recorder or writing in a journal about a stressful life event. The event should be an unresolved one that is difficult to talk about, and that continues to bother the patient. The patient is asked to focus on the experience and make his or her memories of it as vivid as possible. A major focus of the intervention is talking about strong feelings about the event or experience that have not been discussed with others in the past. If possible, the patient is also encouraged to reflect on how the experience is related to his or her efforts to deal with current pain and other life challenges.

Private emotional disclosure is typically carried out for 3 to 6 days over a period ranging from 1 to 2 weeks. The setting for disclosure can be a private room in a clinic or in the patient's home. Most patients report a temporary increase in negative mood during the initial disclosure sessions. This is followed by an improvement in health outcomes 1–3 months later.

Treatment efficacy. Two controlled studies have systematically evaluated the efficacy of private emotional disclosure (Kelley et al. 1997; Smyth et al. 1999). The first study, by Lumley's research team (Kelley et al. 1997), randomly assigned 72 patients having rheumatoid arthritis to one of two conditions: (1) private emotional disclosure, in which they talked into a tape recorder about stressful life events daily for four consecutive days; or (2) a control condition, in which they talked about neutral pictures into a tape recorder for four consecutive days. Relative to the control condition, private emotional disclosure initially produced significant increases in negative mood. Three months after the end of treatment, however, private emotional disclosure led to significant improvements in affective disturbance and better physical functioning. Interestingly, although private emotional disclosure had no effect on pain, those patients who reported the largest initial increases in negative mood following disclosure had the largest improvements in joint function at 3 months post-treatment.

In the second study (Smyth et al. 1999), a sample of 51 rheumatoid arthritis patients and 61 asthma patients were randomly assigned either to a private emotional disclosure intervention in which they were asked to write about the most stressful event of their lives or to a control condition in which they wrote about emotionally neutral topics. Data analyses showed that, at 4-month follow-up, rheumatoid arthritis patients showed a 28% improvement in overall disease activity as rated by a rheumatologist who was blind to treatment assignment.

Conclusion. In summary, private emotional disclosure is a relatively new psychological treatment for pain that has been evaluated in only two controlled studies of patients having pain due to rheumatoid arthritis. Early results from these controlled studies suggest the treatment may have promise in reducing affective distress and improving disease outcomes. Further controlled research with a wider range of patients with pain complaints is needed before the efficacy of this treatment approach can be fully evaluated.

ISSUES IN PSYCHOLOGICAL TREATMENT OF PAIN

Several important issues must be considered in the use of psychological treatments for persistent pain.

REIMBURSEMENT FOR SERVICES

Reimbursement for psychological treatment services is typically inadequate, thereby limiting access to this type of care. The problem of matching coding for treatment services with patient diagnosis appears to be part of the reimbursement problem. Many insurance carriers require that patients receiving psychological treatments have a psychiatric diagnosis. Patients having persistent pain, however, may not have a major diagnosable psychiatric disorder. Another concern often raised by insurance carriers is the lack of evidence for efficacy of psychological treatments. Insurance carriers need to be educated about the results of recent systematic reviews and meta-analyses supporting, for example, the efficacy of cognitive-behavioral therapy for persistent pain and biofeedback for migraine and tension-type headaches.

ALTERNATIVE FORMATS FOR DELIVERING PSYCHOLOGICAL TREATMENT SERVICES

Many of the psychological treatments for pain that we have reviewed are only available at tertiary care centers located in major hospitals or medical centers. Patients with persistent pain often have difficulty traveling to distant sites to meet with a therapist for the multiple treatment sessions required by these therapy protocols.

Clinicians and researchers need to explore alternative formats for delivering psychological treatments. Telephone-based formats for delivering cognitive-behavioral treatments have been used successfully in treating depressed patients, older adults who are visually impaired, and multiple sclerosis patients (Evans and Jaureguy 1982; Rounds et al. 1991; Weiner et al. 1993; Rounds and Galinsky 1995; Mohr et al. 2000), but they have not been widely used in psychological pain management. The results of a recent study suggested that a telephone-based interactive voice response protocol might be a useful strategy for enhancing the long-term outcome of cognitive-behavioral pain management protocol for low back pain patients (Naylor et al., in press).

A novel approach to delivering treatment is use of the Internet. Lorig et al. (2001) recently reported that a novel, Internet-based behavioral pain management intervention reduced physical and psychological disability in patients having low back pain. In the future, interactive computer technologies such as CD-ROMs or virtual reality may provide a means of extending the reach of psychological treatments to a broader population (Keefe et al., in press).

INVOLVING PARTNERS AND FAMILY MEMBERS IN TREATMENT

The impact of living with someone who has persistent pain can be profound. There is growing evidence that spouses and family members not only must adjust to the changes and disruption brought on by the patient's pain, but also must cope with increases in their own emotional strain, depression, and stress (Ferrell et al. 1993; Blanchard et al. 1997). In light of these findings, there has been growing interest in involving partners and family members in psychological treatments for persistent pain.

Involving a partner or family member in treatment is important for several reasons (Keefe et al. 1996). First, in a sense persistent pain is a couples and family issue. The pain not only affects the patient, but also can affect the partner and other family members. Second, active involvement of a partner or family member alerts them to the goals of treatment (e.g., increased activity) and prevents them from unwittingly interfering with these goals (e.g., by encouraging inactivity.) Finally, through participation in treatment a partner or family member can learn ways to prompt and reinforce patients for using psychological techniques learned in treatment. This positive reinforcement can play an important role in maintaining treatment gains.

Over the past decade, we have conducted research testing the efficacy of spouse-assisted cognitive-behavioral treatment for patients having pain. In one study (Keefe et al. 1996), we randomly assigned 88 patients having osteoarthritic knee pain and their spouses to one of three conditions: a spouse-assisted cognitive-behavioral pain coping skills training program, a traditional pain coping skills training focused on the patient alone, or an educational/social support control condition attended by the patient and spouse. The spouse-assisted training program not only included training in the usual menu of cognitive and behavioral pain coping skills, but also systematically trained the patient and spouse how to work as a couple to acquire and master these coping skills. The couples training included: (a) a behavioral rehearsal technique that taught spouses how to prompt and reward pain coping skills; (b) joint home practice sessions in which both members of the couple practiced each pain coping skill together; (c) in vivo practice sessions in which the couple learned to apply pain coping skills in challenging everyday situations; and (d) maintenance training, focusing on strategies that the couple could use to prompt continued use of coping skills over long periods. Data analyses showed that, compared to the control condition, patients in the

spouse-assisted coping skills training group showed significant improvements in pain, psychological disability, self-efficacy, and pain coping. Interestingly, there was a consistent pattern in which the spouse-assisted training group showed the best outcomes, the traditional skills training group the next best outcomes, and the control group the worst outcomes.

We are currently conducting a study in which we are extending partner-assisted pain coping skills training to the management of cancer pain at the end of life. Hospice-eligible patients in this study are randomly assigned either to a partner-guided pain management training intervention that consists of educational information and cognitive-behavioral pain coping skills training or to a standard treatment control condition. Although data analyses have not been conducted, many patients and their partners anecdotally have reported that they found the partner-guided protocol to be quite helpful.

NEW DIRECTIONS IN ASSESSMENT AND MANAGEMENT

In the earlier parts of this chapter, psychological assessment and management have been considered primarily from a tertiary perspective; i.e., in the context of chronic pain, as presented to pain clinics, and as evaluated by specialist psychological services. In the final part of this chapter we wish to address some new directions for pain management.

THE MOVE TOWARD SECONDARY PREVENTION

A clear focus on the psychological concomitants of pain and disability does appear to have had some success with chronic pain patients (Morley et al. 1999), and so the logic of trying to prevent some of the "recoverable" disability seems irresistible. As Linton (1999) has pointed out, there are some ambiguities in the term "secondary prevention" (discussed below), but it generally refers to prevention of chronic incapacity. There is also epidemiological and economic support for such an endeavor. Because back pain is both common and recurrent (von Korff et al. 1988; Waddell 1996), prevention of *disabling* back pain would appear to be a much more realistic target than primary prevention. Early intervention, however, requires a system for identification of those potentially at risk of chronicity.

FROM RISKS AND "FLAGS" TO OBSTACLES TO RECOVERY

Concepts of risk have usually been based on identification of factors associated with poor outcome, but there are different types of predictors of outcome, and not all are potential targets for intervention. It may be helpful not to base prevention on risk as such, but to refocus attention on *obstacles to recovery*.

In the field of back pain, the concept of risk has been examined in terms of "flags." The signs and symptoms considered indicative of possible spinal pathology or of the need for an urgent surgical evaluation became known as "red flags." These "risk factors" for serious pathology or disease became incorporated into screening tools recommended for use in primary care by clinicians to identify those patients in whom an urgent specialist opinion was indicated. Assessment of these risk factors was included within several new sets of clinical guidelines for the management of acute low back pain (Bigos et al. 1994; CSAG 1994). The increasing costs of chronic incapacity, despite advances in technological medicine, stimulated a search for new solutions to the problem of low back disability. In New Zealand, increasing costs of chronic nonspecific low back pain became an unmanageable burden. This problem fueled a new initiative designed to complement a slightly modified set of acute back pain management guidelines with a psychosocial assessment system designed systematically to address the psychosocial risks factors, or "yellow flags," that had been shown in the scientific literature to predict chronicity (Kendall et al. 1997). The principal categories of yellow flags are attitudes and beliefs about back pain, behaviors, compensation issues, diagnostic and treatment issues, emotions, family, and work. Kendall et al. also include a number of specific guidelines for behavioral management, shown in Table III. There are clearly *preventive* components within the management guidelines, and although these are primarily clinical in focus, they also recognize the need to address occupational issues.

IMPROVING THE QUALITY OF PSYCHOLOGICAL MANAGEMENT BY OTHER HEALTH CARE PROFESSIONALS

Most patients are not seen by psychologically trained health care professionals (and indeed do not require them). It is important, however, that other professionals be able to deal with the psychological concomitants of pain. Few have had specific training in

Table III
Behavioral management guidelines

Provide a *positive* expectation that the individual will return to work

Be directive in scheduling regular reviews of progress

Keep the individual active and at work

Acknowledge difficulties of daily living

Help maintain positive cooperation

Communicate that having more time off work reduces the likelihood of successful return

Beware or expectations of "total cure" or expectation of simple "technical fixes"

Promote self-management and self-responsibility

Be prepared to say "I don't know"

Avoid confusing the report of symptoms with the presence of emotional distress

Discourage working at home

Encourage people to recognize that pain can be controlled

If barriers are too complex, arrange multidisciplinary referral

Source: Kendall et al. (1997).

this regard. A number of general guidelines are offered below; clinical management is discussed in more detail in Main and Spanswick (2000, Chapter 18).

Effective communication is an important facet of clinical care. In the majority of patients this will be unproblematic. In a minority of patients however, the psychological impact of pain and pain-associated disability is such that specific assessment and management strategies are required.

Patients frequently show evidence of distress. Given the fact that most patients present primarily with the same symptom (i.e., pain), it is perhaps surprising to find that the distress of pain patients differs not only in its intensity, but also in its precise nature. It is very important to systematically appraise the specific nature of the problem and obtain a distress profile that identifies key features. It may be helpful to address the issue under the following headings: pain, limitations in activity, sleep, quality of life, personal relationships, work, and previous treatment. It also may be helpful to consider a number of specific strategies for dealing with distress and anger, as shown in Table IV.

DEVELOPMENT OF OCCUPATIONALLY ORIENTED INTERVENTIONS

Occupational factors as obstacles to recovery: blue flags and black flags. In tackling obstacles to recovery, whether from the perspective of clinical management or occupational rehabilitation, it seems necessary to distinguish patients' concerns about their personal well-being from their specific concerns about work. It was therefore decided to subdivide the yellow flags into clinical yellow flags and occupationally focused blue flags (Main and Burton 1998, Burton and Main 2000). The blue flags have their origin in the research on occupational stress (as reviewed above). They are perceived features of work that are generally associated with higher rates of symptoms, ill health, and work loss, which in the context of injury may delay recovery, or constitute a major obstacle to it. They are characterized by features such as high demand, low control, unhelpful management style, poor social support from colleagues, perceived time pressure, and lack of job satisfaction. Individual workers may differ in their perception of the same working environment. According to Bigos et al. (1990), perception may be more important than the objective characteristics: "Once an individual is off work, perception about symptoms,

Table IV
Strategies for dealing with distress and anger

Give the patient time

Signal that it is permissible to be upset

Find out gently the particular focus of their concern

Find out why they are telling you

Distinguish pain- and disability-associated distress from more general distress

Identify mistaken beliefs and fears

Try to correct misunderstandings

Identify misunderstandings arising from previous treatment

Identify distress and anger as a consequence of previous treatment

Listen and empathize

Do not get angry yourself

Decide what *you* can deal with and what requires someone else

Be open about this

If appropriate, offer to help patients enlist additional assistance

Establish a policy for management of high-risk patients

about the *safety* of return to work, and about impact of return to work on one's personal life can affect recovery even in the most well-meaning worker."

It should be emphasized that blue flags incorporate not only issues related to the perception of job characteristics such as job demand, but also perception of social interactions (whether with management or fellow workers). The occupational component of the original New Zealand yellow flags focused on the perception of work in terms of obstacles to recovery, but it is also necessary to distinguish between two types of occupational risk factors. They can be thought of as factors concerning the *perception* of work (blue flags) and objective characteristics of work and employment (black flags) (Main and Spanswick 2000; Main and Burton 2000; Burton and Main 2000). The need for a "systems" perspective has been recognized in many countries, but there are few examples as yet of a truly integrated approach.

The advantages of an integrated approach were demonstrated in a rehabilitation study in the Bristol and Salford study in the United Kingdom (P.J. Watson and C.J. Main, unpublished manuscript) in which a short, occupationally oriented pain management program was designed for unemployed benefit claimants with back pain as the principal reason for unemployment. (Most types of occupationally oriented rehabilitation are essentially work retention rather than work rehabilitation programs because the clients are still employed.) Despite the fact that on average the group had been out of work for 44 months and had been symptomatic for more than 8 years, 43% were rehabilitated into work and 71% into useful function. Although it was not possible to design a randomized controlled trial, the study demonstrates the feasibility of an integrated clinical and occupational initiative and challenges the previously accepted wisdom (Waddell 1998) that less than 2% of such a group would be likely to return to work. There are two concluding observations. First, return to work was achieved despite a residual level of disability for which further treatment would be appropriate. Secondly, we believe that the success of the program depended on the delivery of physical therapy in the context of a much wider approach to psychosocial obstacles to recovery.

BEYOND SICKNESS AND DISABILITY

Finally, a challenge for the new century. Perhaps the most important conceptual shift needed in relationship to the role of psychological factors in the preven-

tion of unnecessary musculoskeletal incapacity is to move beyond the traditional concepts of sickness and disability. Pain and disability are more than a health care issue. Indeed, they are more than a social policy or a political issue. Perhaps we need to extend our traditional models of pathology and psychopathology to encompass the prevention of suboptimal functioning. To achieve this goal we must not only incorporate our present concepts of sickness and disability management but we will also need to enhance resilience and optimize functioning in those with chronic musculoskeletal pain in the recognition that it is not possible to abolish all pain.

In a recent series of reports, the Institute for Health and Productivity Management has considered the issue of suboptimal performance from an organizational perspective (Peterson and Travis 2000). Although their recommendations regarding the management of absenteeism are not a matter for this chapter, their recommendations in relationship to stress and performance optimization merit comment. They recommend striving toward healthier organizational cultures in which people "experience greater personal control in how they do their work; are rewarded for developing supportive rather than competitive relationships; and are equipped with the skills to communicate effectively and manage differences among employees with high levels of trust and mutual respect" (Peterson and Travis 2001). In terms of management, they advocate screening for "emotional intelligence" (Goleman 1998).

It may be that we should begin to direct our psychological interventions more systematically toward lifestyle management such as the achievement of better "work-life balance." The rapid growth of employee assistance programs (EAPs) confirms that organizations recognize the need to take direct actions when they see employees having emotional problems affecting work performance and organizational productivity and costs.

We see such potential developments for pain management in evolutionary rather than revolutionary terms. Pain is part of life. We need to incorporate optimal management of obstacles to recovery with facilitation of optimal functioning (in terms of personal well-being as well as productivity). Recent concepts of wellness and "presenteeism" have offered ways in which people can be helped. Seen from a health care perspective, we need to enhance individuals' positive or adaptive coping strategies. This focus has always been an important part of the pain management agenda. In several countries new disability legislation requires opportunities for work to be accessible to low back pain sufferers who previously might have been rejected.

CONCLUSIONS AND RECOMMENDATIONS

If we are to expand our concepts of treatment, rehabilitation, and prevention in terms of a "systems" perspective, we clinicians must re-examine our range of competencies in the light of such new challenges. The focus must be on skills rather than on professional accreditation alone. We may need to expand our clinically derived concepts of prevention, broaden our skills, and develop closer and more effective liaison with other agencies. This must, however, be carried out within an evidence-based framework. We need to develop and validate a new generation of individualized and system measurement tools, and re-examine the nature of our professional practice.

Psychological assessment and management of pain needs to move beyond traditional concepts of psychopathology, ill health, and disability into a wider context incorporating not only the "whole patient" but also the way in which patients manage their pain-associated disabilities. However, fundamental to any such endeavor is appropriate and effective management of the fundamental psychological concomitants of pain. In the final part of this chapter we have taken an "expansive view" of the possibilities of the context for psychological assessment and appraisal. In so doing, however, we would not wish to abandon our clinical and scientific roots. It is clear, however, that understanding and managing the psychological component requires models of illness that can be developed beyond sickness and disability management.

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