Chapter 14
Assessment of Patients with Chronic Pain with or Without Comorbid Mental Health Problems

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14.1 Introduction

Pain is a common human experience. Most pain we experience is a relatively minor event and generally remits it time without any medical intervention or is alleviated with short-term use of over-the-counter analgesics. Yet, some forms of pain require much medical attention. Some pain is associated with specific potentially treatable pathology, such as cancer or traumatic injuries. However, for a significant number of people, some pain is persistent, failing to remit over time, beyond the expected healing period; even with no identifiable physical pathology and such pain may become chronic. Chronic pain is a common physical problem in our society. Chronic back pain is the most prevalent chronic pain disorder treated at pain clinics; one study reported that 59 % of patient evaluated had at least one current and 77 % had a least one lifetime psychiatric diagnosis [79].

Historically, the concept of pain largely depended upon the assumed linearity between identifiable organic pathology and pain report. Thus, the amount of pain was expected to be related to the amount of tissue damage. When the presence and extent of pain report was not explainable by the pathology, pain was considered ‘functional’ or ‘psychogenic’. Psychological factors were then considered to be

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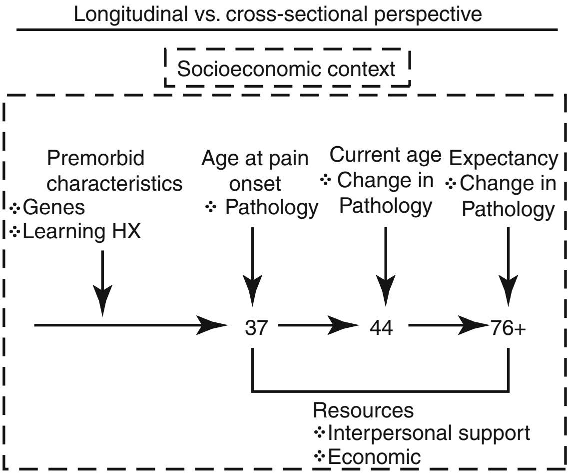

Fig. 14.1 Longitudinal and cross sectional contextual factors in the development and maintenance of chronic illness

playing a causal role; whereas psychological factors were considered largely irrelevant to the pure physiological 'real' or 'organic pain'. However, over the past four decades, research has repeatedly and consistently demonstrated that pain of all types represents a complex biopsychosocial phenomenon. A range of cognitive, behavioral, and affective factors, in addition to physical and other biomedical factors, have been identified as essential aspects of understanding and treating pain patients, particularly those with chronic pain. In this chapter, we will briefly review the historical background of the biopsychosocial model of pain and discuss the cognitive, emotional, and behavioral factors that are known to be significant contributors of pain experience. We will then provide an overview of a comprehensive assessment of patients with chronic pain with a particular attention to those who may have a co-morbid psychiatric problem, keeping in mind that these psychological factors are important in *all* situations where pain persists. The fundamental principles of pain assessment are constant regardless of patient population. Thus, we will provide in this chapter the review of what are essentials in pain management overall with the special notations for mental health populations where appropriate.

The presence of any symptom does not begin in isolation of the entire individual; pain does not represent just discomfort in a specific body part but a person with a unique phenotype, prior leaning history, and adaptive resources. Moreover most people do not live in isolation but a social context and this context contributes to the experience of pain and adaptation (see Fig. 14.1). Whether psychological factors preceded the onset of pain or evolved in response to the presence of long standing symptoms both the physical and psychological contributors need to be assessed and subsequently addressed.

14.2 Background

14.2.1 Unidimensional Models of Pain

Historically the dominant view of pain reflected the persistent assumption that an isomorphic relationship must exist between subjective reports of pain and observable pathology. If this assumption is correct, assessment should focus exclusively on evaluation of structural damages or biological abnormality. The recent advancement of technology in the field of diagnostic imaging has expanded our ability to assess such damage using noninvasive techniques. However, as we will discuss below, the utility value of identifying the organic pathology, although important, is insufficient. At the very least, research implies that the presence, extent, or absence of pathology does not provide a meaningful guideline as to how much patients 'should' be experiencing pain.

Traditionally, when the physical pathology is absent, the origin of pain was often attributed to psychogenic causes. As a consequence, patients reporting pain without readily observable pathology are considered as a medical mystery at best, and indication of symptom magnification, more extensive psychopathology, or outright malingering at worst. The misunderstanding may be more prominent unfortunately for those with pain and comorbid mental illness. Patients with anxiety or depressive disorders report more physical symptoms including pain, as the number of physical symptoms increases so does the likelihood of an anxiety or depressive disorder, and this is true for both medically unexplained and explained symptoms [78].

The traditional and dualistic view of pain asserts that the mechanisms of pain had to be one of the other—100 % explainable by tissue damage or psychological in origin. Even today, this unidimensional view of pain, dating back at least to the seventeenth century and probably to the ancient Greeks, continues to be held by many people, including the majority of healthcare providers.

14.2.2 Failure of Somatic Model of Pain

Over the years, research has revealed puzzling observations that would challenge the presumed linear relationship between pain and organic pathology and the mind-body dualism. For example, several studies using plain radiography, computed tomography scans, magnetic resonance imaging (MRI), and discography reveal that more than approximately 30 % of asymptomatic individuals have structural abnormalities such as herniated discs resulting in impingement of neural structures and spinal stenosis that might explain the report of pain if it was present but in these cases it is not [17, 26, 63]. Similarly, the results of a longitudinal study following groups of elite male athletes and non athletes for 15 years indicated that the evolution of persistent pain was *not* related to the number of problematic discs or changes in MRI findings [9]. The authors found that not only did the presence of pain does not predict pathology, but also the presence of pathology did not predict pain. When a total of 256 hips were analyzed with a MRI, the large number of hips with no complaint of pain showed various degrees of peritrochanteric abnormalities, comparable to those hips with pain [15]. Osteoarthritis (OA) is a prevalent degenerative joint disease that involves abnormal degradation in the joint. The physical findings such as cartilage loss and bone marrow edema are considered to reflect the progression of the disease and clinical presentations. The abnormality is also assumed to underlie pain, a common symptom of OA. However, when the grading of pathology by MRIs was evaluated, neither bone marrow edema nor cartilage abnormality were linearly related to pain severity [81], a significant number of those without symptoms revealed signs of abnormalities [17], and structural abnormalities do not predict levels of physical activity [148].

Another challenge to the unidimensional model of pain comes from the observation in the surgical context. For example, the identical surgical procedure, performed following a standard protocol on patients with the same objective physical pathology, may have very different outcomes [92]. In one patient the pain is eliminated immediately following surgery, whereas another patient finds no benefit and may even report worsening of the pain. Finally, only a modest association exists between patients' levels of functional impairment and the extent of tissue pathology [142, 148]. Obviously, factors other than organic pathology must be contributing to these observations.

14.2.3 Biopsychosocial Model of Pain

The failure to explain the presence and extent of pain based solely on the pathological findings has led to the field to widen its view on pain to integrate other factors that may contribute to pain experience. According to the biopsychosocial view of pain, pain experience results from a complex web of interaction among nervous and physiologic system (both central and peripheral), psychological factors, and social variables [45, 50].

Assessment of the person experiencing pain therefore requires the comprehensive understanding of all relevant factors in the biopsychosocial perspectives. We will discuss now the common sets of psychosocial variables that have been identified as relevant and significant. Interestingly, those variables are also often observed in the psychiatric disorders. Understanding how those variables serve as an intersection between pain and psychiatric or emotional disorders will be critical for developing treatment plans.

Psychological Factors Contributing to Pain: Cognition

Beliefs, Appraisals, Thought Processes

People are active processors of their experience, which is always mediated by what they believe and how they interpret the situation. The influence of beliefs on pain is profound. In acute pain situations, for example, pain is directly coming from tissue damage and protecting the area of pain by refraining from activity may be adaptive. However, when the belief is applied to chronic pain, it often augments the complication. Unfortunately, such beliefs are all too common in chronic pain, and they often lead to activity avoidance and deactivation in general and are significantly related to greater pain and disability [138, 141]. The importance of belief in shaping pain experience has been demonstrated in a wide range of pain groups. For example, cancer patients who believed that their pain is related to cancer have been shown to report greater pain in response to physical therapy than those who believed that pain came from other sources [119]. Even for healthy individuals, the belief that pain is threatening reduces pain tolerance [61]. On the other hand, modification in maladaptive beliefs about their pain seems to predict changes in pain and disability (e.g., [91]).

Pain patients with significant emotional distress may be particularly vulnerable to adverse impact of negative cognition as negative thought processes are particularly common in people with depressive or anxiety disorders [27]. Furthermore, depression and anxiety are also common comorbid problems for patients with significant pain, particularly of chronic nature [87, 96].

Research investigating how negative cognition is associated with depression in chronic pain typically shows that depressed pain patients exhibit greater negative thought processes than pain patients without depression [80, 118]. Depressed pain patients seem not only to show greater negativity in thoughts but also reduced positive thought processes compared to non-depressed pain patients [60]. Negative thought process appears to have reciprocal influences such that mood affects pain and conversely pain affects mood. Given the potential contributory role of negative attributions of pain and other somatic symptoms in pain patients, assessment of depression-related negative thoughts in depressed as well as non-depressed patients experiencing persistent pain seems essential.

One type of the extreme, negative appraisal style is ‘catastrophizing’. It is a cognitive process whereby one assumes the worst possible outcomes and interprets even minor problems as major calamities. A large volume of evidence suggests that catastrophizing about pain plays a significant role in defining the actual experience [128]. Catastrophizing has been found to be related to higher sensitivity to experimentally induced pain in healthy children [82] and adults [42], as well as people with acute and chronic pain [51, 54, 120, 123]. For people undergoing a surgery, catastrophizing predicts time to hospital discharge [97], post-operative pain severity and poor QOL as well as later development of chronic pain [75]. It is also a significant predictor of pain-related disability (e.g., [3]) in chronic pain.

Catastrophizing has been shown to have significant association with emotional distress in a range of pain patients [112, 114, 121, 138, 139]. This has prompted a question as to whether catastrophizing is a symptom of emotional distress itself, rather than a separate construct. Research generally supports the idea that catastrophizing and depression are fundamentally different and relatively independent concepts. For example, Geisser et al. [52] showed that catastrophizing mediated the relationship between depression and the affective aspect of pain but not the sensory aspect. A study [3] also indicates that both depression and catastrophizing contribute independently to pain-related disability in chronic pain patients. These results suggest that it is important that catastrophizing is assessed along with depressed mood in pain patients.

The degree to which catastrophizing exerts its influence may depend on the relatively pervasive personality characteristic; catastrophizing seems to influence pain experience among people with higher degree of anxiety sensitivity in response to physical exertion [56]. Evidence also suggests that catastrophizing seems to worsen the pain experience by attenuation of the central down regulation of diffuse noxious inhibitory control mechanisms [146].

Imaging studies may offer additional explanations as to how catastrophizing may influence pain perception. For example, Seminowicz and Davis [111] examined functional MRI (fMRI) images while their healthy subjects underwent laboratory pain testing and found that the effect of catastrophizing on neural response to painful stimulation may depend on the stimulus intensity levels. The neural response to mild pain were seen in the regions representing attention, vigilance, and emotion; whereas the relationship is reversed with the moderate pain level, suggesting that catastrophizing attenuate the descending inhibitory system to more intense stimuli and making it more difficult to disengage from pain. Similar results have been reported in an imaging study of fibromyalgia patients in which catastrophizing, independent of depression, was related to the activation in the brain areas reflecting the attentional, anticipatory, and emotional activities in response to pain [57]. These studies suggest that catastrophizing adversely impact pain experience by means of increased attention and negative anticipation of pain.

Sense of Control/Helplessness

A sense of control represents the perceived ability to manage pain or pain-related matters. How patients conceptualize their ability to control pain and associated stress seems to be an important determinant for how they actually cope with pain. Indeed, increased sense of control has been shown to be linearly related to greater functionality in chronic pain patients [138]. Furthermore, improvement in control beliefs following treatment typically has been shown to result in reduction in pain and disability [67]. The opposite end of the control spectrum is a sense of lack of control—helplessness. The literature generally supports that helplessness is associated with greater pain and poorer physical and psychological adjustment in chronic pain [70].

The effects of perceived control are not limited to chronic pain but it significantly influences how people experience acute pain. During mammography, for example, when women were allowed to control compression to one breast while a technician controlled the pressure for the other, the patients' pain reports were significantly lower for the self-controlled compression with no compromise in the quality of the images [77]. Similarly, perceived controllability of pain during childbirth has been shown to be associated with lower pain report and distress up to 6 months following the delivery [130].

Neural mechanisms accounting for how sense of control impacts pain may parallel to those for catastrophizing as reviewed above. Perceived controllability of pain seems to influence the neural activation in the anterior cingulate cortex (ACC) and insula (areas representing attentional and emotional responses); the responses in these areas were attenuated in individuals who were led to believe that they could control the stimulus level compared to those who were led to believe that there was nothing they could do to change the level [108]. A subsequent study [109] showed the responses in these regions lost the predictability when the effects of the prefrontal cortex (PFC) were controlled, suggesting that modulation of pain by sense of control depends on the top-down influence of PFC to ACC and insula.

Poor sense of control and beliefs about helplessness has been implicated as a contributing factor to the development and maintenance of anxiety and mood disorders [30]. The importance of these psychological variables in influencing mental health of pain patients has also been reported. Several studies [83, 95, 136] have demonstrated that although depression is common in chronic pain, the relationship between them is not linear but may be mediated by a poor sense of control and helplessness.

Self-Efficacy

Self-efficacy belief is defined as a personal conviction that he or she can successfully execute a course of action to produce a desired outcome in a given situation. Efficacy beliefs are task specific; for the assessment of chronic pain, they typically include self-efficacy beliefs to manage pain, symptoms, and functioning.

Experimental studies have shown that pain related self-efficacy is associated with reports of pain sensitivity in response to noxious stimulation [7]. An early study with healthy people has shown that stronger efficacy belief about tolerating a laboratory pain induction procedure was significantly related to pain tolerance [34]. Similarly, patients with OA with a high level of self-efficacy for handling pain rated heat stimuli as less painful than those with low self-efficacy belief [69].

Self-efficacy belief also plays a role in clinical presentation of chronic pain. Lower self-efficacy is consistently related to greater clinical pain ratings in various chronic pain conditions [23, 29, 124]. Low level of self-efficacy belief is related to disability [13, 110]. As was the case with a sense of control, self-efficacy belief mediates the relationship between pain and psychological functioning [4, 5] in chronic pain. Furthermore, recent longitudinal studies suggest that poor self-efficacy belief is a risk factor for development of functional disability associated with chronic pain [32] and work absenteeism [25]. For patients undergoing knee surgery, self-efficacy beliefs about functional ability at the pre-operative stage also predicts post-operative symptoms and function [129].

Whereas low self-efficacy beliefs are related to greater pain and dysfunction, improvement in self-efficacy is one of the best predictors for successful rehabilitation for pain patients. Elevated level of self-efficacy beliefs at pretreatment tends to predict better outcomes [22, 76]. Furthermore, successful outcomes of pain therapy typically show associated improvement in self-efficacy, along with the improvement in depression and anxiety [49, 147].

Improvement of self-efficacy following treatment may improve pain through activating the endogenous opioid system. Chronic pain patients who successfully completed cognitive-behavior therapy (i.e., increased self-efficacy at post-treatment) showed significantly increased pain tolerance compared to those who did not receive treatment or people who just took placebo pills; however laboratory studies have demonstrated that the effect was attenuated by naloxone, an opioid antagonist [8].

We have reviewed several cognitive variables that have been implicated in the experience of pain and related disability. Each of these variables has potent association with pain, disability, and psychological functioning in chronic pain patients. Thus it makes sense that treatment approaches that target modification of maladaptive cognitions (e.g., cognitive-behavior therapy) should lead to better outcomes. However, a word of caution is in order. These cognitive variables do not occur in isolation and thus likely to be all interrelated. Whether these variables represent some aspects of a larger construct or they are independent processes associated with pain and stress is not clearly delineated. This dilemma poses a problem in interpreting results from studies that involve several of these factors that are treated independently. Further investigation on this issue seems warranted.

Psychological Factors Contributing to Pain: Mood and Behaviors

We will now briefly review how mood and behaviors may impact pain. These are vast areas and the in depth review of the literature is beyond the scope of this chapter but is available in other chapters in this volume.

Depression

The prevalence of depression as a comorbid psychological condition in chronic pain varies greatly from 5 to 100 %, depending on how and where patients were assessed and the criteria for depression used. However, it is quite common in specialized pain clinic patients; over 50 % experience significant emotional distress [6]. Depression adds significant burden to chronic pain patients. Depression is one of the significant determinants of pain-related disability [131]. Depression in chronic pain also drives the costs associated with disability and healthcare utilization upwards [68].

Historically, there has been much debate as to which of depression and pain comes first. The psychogenic tradition of pain asserts that chronic pain is a form of 'masked depression' [16]. That is, patients' reports of pain hide underlying depression because it may be more acceptable to complain of pain than to acknowledge depression, although this judgment process does not necessarily occur at a conscious level. Despite the lack of any scientific evidence to substantiate it, the claim remains a popular notion in public and very unfortunately even among clinicians. Many patients experience undue distress upon facing the assumption that their chronic pain is 'all in their head'.

The literature typically supports that depression follows the development of chronic pain [18]. Some studies also suggest that the pain-depression relationship is not linear but rather is mediated by how patients view their plight. For example, we [136] demonstrated that the relationship was mediated by a sense of control and life-interference appraisal of patients. The interaction between cognition and mood in chronic pain makes sense given the presence of individual differences in depression among patients with same diagnoses at the comparable pain and physical findings [94].

This is not to say that depression does not exert any contributions to pain. It is well established that depressed people tend to report elevated degrees of pain [122]. Longitudinal studies [36, 62, 100] suggest that depression is a risk factor for developing chronic pain. However, these results do not necessarily indicate that depression is the sole cause of pain. As noted, regardless of the causal priority, both pain and depression require treatment in chronic pain patients.

Depression in chronic pain presents a particularly difficult concern for clinicians given the recent increase in misuse of potent opioid analgesics and unintentional as well as intentional poisoning from them. Fatalistic thoughts and wishes are common in chronic pain patients. Almost a quarter of treatment seeking chronic pain patients admits the history of suicidal ideation [117]. Thus the assessment of depression in chronic pain should also be linked to the screening of medication misuse/abuse as well as suicidal and/or overdosing history and proper referral should be made to address potentially dangerous condition [28]. We will specifically discuss the assessment issues related to suicidal thoughts and medications later.

Fear and Anxiety

Anxiety and fear-related problems are more prevalent in chronic pain patients than in the general public. The prevalence of any anxiety disorder may be twice as much (35 vs. 18 %); both panic disorder and posttraumatic stress disorder (PTSD) are three times more common in chronic pain patients [87]. Although fear and anxiety are often treated as a single unit mood condition, they are likely separate entities with distinctive physiological and emotional experiences. Anxiety is a future-oriented emotion; it is experienced as worry and nervousness related to some often vague future issues, whereas fear is a present-oriented mood state about something specific that one wants to escape from or avoid. The blurred distinction between fear and anxiety may partially come from the fact that psychological problems

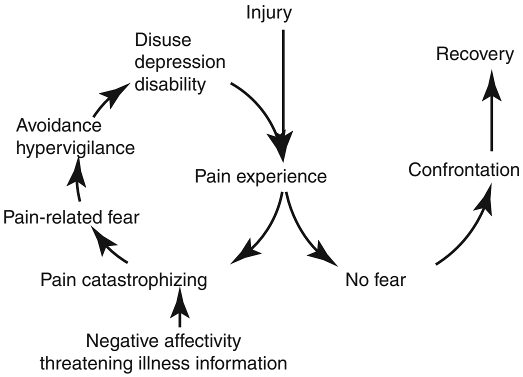

Fig. 14.2 Fear-avoidance model of chronic pain

associated with these states were both included under one category of Anxiety Disorder as a diagnostic entity. When the patterns of symptom clustering are considered, however, two distinct types seem to emerge: anxiety-oriented cluster that include generalized anxiety (GAD) and PTSD that are associated more with depression and fear-oriented cluster where phobia and panic disorder symptoms form an entity [145]. In relation to pain experience, they may also lead to differential results. When fear and anxiety states were experimentally induced (fear with exposure to shock, anxiety with threat of shock), people experiencing anxiety had greater pain reactivity than those who were in the fear group [104].

Fear and anxiety are known to have behavioral consequences expressed as escape and avoidance behaviors. Escape behaviors are intended to terminate the noxious experience. Some examples that may happen to chronic pain patients include medication taking in response to a flare and stop activity and rest. In short, escape behaviors are reaction to the noxious cues and they are often negatively reinforced; the probability of the escape behavior recurring increases by the positive consequence of removing aversive experience. Avoidance, on the other hand, is engaged to prevent the noxious experience from occurring. People typically respond to cues associated (or possibly associated) with pain and attempt to terminate the cues. For example, chronic pain patients may restrict their activity, say not walk more than 50 ft because they believe that walking anything longer may worsen pain. As a response to fear, escape behaviors reduce fear whereas successful avoidance may cover up fear totally that the person may actually not aware that he or she is engaging in avoidance behaviors, but yet the behaviors are self-reinforced by the termination of the threatening cues and/or absence of fear-loaded noxious event (e.g., pain worsening).

Pain is a naturally fear-producing state (i.e., unconditioned stimulus), thus being easily subjected to the behavioral principles to develop conditioned responses. Pain related avoidance and escape behaviors in pain patients may be conceptualized as a set of ‘safety-seeking behaviors’, loosely defined as ‘behaviors utilized by patients in an attempt to avoid a feared outcome (p. 242) [113]’. These behaviors are known to be integrated into the dysfunctional circle of pain maintenance. The revolving model of fear-avoidance in chronic pain [140] is depicted in Fig. 14.2. As the model suggests, pain-related fear and avoidance plays a significant role in the interplay between pain, dysfunctional cognitive and affective experience and disability resulting in the perpetuation of the chronic pain circle. Indeed, pain-related fear-avoidance is significantly associated with functional limitation in various life domains and perceived disability in acute and chronic pain patients [33, 55, 58, 111].

Anger

Anger has been widely observed in individuals with chronic pain in studies published over 30 years ago. For example, Pilowsky and Spence [98] reported an incidence of 'bottled-up anger' in 53 % of chronic pain patients. Anger is not necessarily maladaptive. Anger can be an adaptive emotional response to the injustice that patients perceive. However, the accumulation of research suggests that poorly managed anger exacerbates pain and disability, and interferes with the treatment efforts.

There are multiple dimensions of anger that are important to considered, such as experience of anger, expression of anger, and target of anger. Expression of anger is the area that has been most studied in chronic pain. Trait anger-out, defined as a personal tendency to express anger directly verbally or physically, seems to be related to greater pain greater pain report in response to experimentally induced noxious stimulation in healthy and clinical pain populations, as well as greater clinical pain report in chronic pain patients [19].

It has been suggested that the dysregulation in the endogenous opioid function may mediate the relationship between trait anger-out and pain. Expressed anger seems to attenuate the endogenous opioid activation to experimentally induced pain [20]. Reduced release of beta-endorphin in response to pain has also been observed in those with high degree of anger-out [21].

Anger also seems to have adverse impact on pain if it is suppressed; Kerns et al. [71] noted that the internalization of anger was strongly related to pain, perceived interference, and reported frequency of pain behaviors. Inhibition of anger expression in particular has been found to be related to depression especially for those with severe pain [43]. Similarly, a recent study [103] showed effort to suppress provoked anger attenuated blood pressure response to pain and was positively related to greater pain report.

The findings we highlighted to this point were presented to illustrate the important role of psychological factors that contribute to the disability and distress associated with persistent pain. Thoughts, feelings, and contextual factors all contribute to the experience of pain, especially as it extends over time. Thus, we attempted to build a case for the importance of evaluating these factors when assessing chronic pain patients, a comprehensive assessment is essential to form the basis for treatment planning and decision making, simply attempting to treat the assumed causes of pain and the symptom of pain alone has been proven to be inadequate despite the advances in the development of sophisticated and advanced treatment following from the expanding and evolving understanding of the neurophysiology of pain.

14.3 Pain Assessment

14.3.1 General Assessment Considerations

Turk et al. [132] suggested that three central questions should guide assessment of people who report pain:

1. What is the extent of the patient's disease or injury (physical impairment)?
2. What is the magnitude of the illness? That is, to what extent is the patient suffering, disabled, and unable to enjoy usual activities?
3. Does the individual's behavior seem appropriate to the disease or injury or is there any evidence of amplification of symptoms for any of a variety of psychological or social reasons or purposes?

As noted earlier, pain is a common experience. Even for chronic pain, many people continue to live a productive and enjoyable life with limited treatment. Thus a question arises, who needs a comprehensive pain evaluation and how we screen patients for it? Table 14.1 provides a list of 16 salient points that can be used as prescreening questions with patients who report persistent or recurring pain. When a number of these questions are endorsed, referral for more thorough evaluation by pain specialists should be considered. Generally, a referral for evaluation may be indicated where disability greatly exceeds what would be expected based on physical findings alone, when patients make excessive demands on the health care system, when the patient persists in seeking medical tests and treatments when these are not indicated, or when the patient displays evidence of addictive behaviors or continual non-adherence to the prescribed regimen.

14.3.2 Comprehensive Pain Evaluation: Medical and Physical Evaluations

Appropriate assessment and treatment of a patient whose primary symptom is pain begins with a comprehensive history and physical examination. Patients are usually asked to describe the severity of their pain, location, characteristics (e.g., dull, stabbing, burning), historical course of pain, treatment history, and current and past medications use for pain and comorbid problems. Neurological and physical examination will evaluate the mechanical contribution and possible structural abnormalities. Physical therapist may also be involved in conducting physical assessment of range of motion, strength, gait, posture, joint stability and reflex. The nature and level of activities of daily living are also evaluated. Through this examination, clinicians may note the presence or absence of signs indicative of and underlying pathological mechanism to which the pain may be attributed.

A physician may order some laboratory testing to be conducted to rule out any specific structural damages or endocrine and neurological abnormalities.

Table 14.1 Screening questions

1. Has the patient's pain persisted for 3 months or longer despite appropriate interventions and in the absence of progressive disease? [Yes]
2. Does the patient repeatedly and excessively use the health care system, persist in seeking invasive investigations or treatments after being informed these are inappropriate, or use opioid or sedative-hypnotic medications or alcohol in a pattern of concern to the patient's physician (e.g., escalating use)? [Yes]
3. Does the patient come in requesting specific opioid medication (e.g., dilaudid, oxycontin)? [Yes]
4. Does the patient have unrealistic expectations of the health care providers or the treatment offered (i.e., 'total elimination of pain and related symptoms')? [Yes]
5. Does the patient have a history of substance abuse or is he or she currently abusing mind-altering substances? [Yes]
6. Does the patient display a large number of pain behaviors that appear exaggerated (e.g., grimacing, rigid or guarded posture)? [Yes]
7. Does the patient have litigation pending? [Yes]
8. Is the patient seeking or receiving disability compensation? [Yes]
9. Does the patient have any other family members who had or currently suffer from chronic pain conditions? [Yes]
10. Does the patient demonstrate excessive depression or anxiety? [Yes]. Straightforward questions such as, "Have you been feeling down?" or "What effect has your pain had on your mood?" can clarify whether this area is in need of more detailed evaluation
11. Can the patient identify a significant or several stressful life events prior to symptom onset or exacerbation? [Yes]
12. If married or living with a partner, does the patient indicate a high degree of interpersonal conflict? [Yes]
13. Has the patient given up many activities (recreational, social, familial, in addition to occupational and work activities) due to pain? [Yes]
14. Does the patient have any plans for renewed or increased activities if pain is reduced? [No]
15. Was the patient employed prior to pain onset? [No] If yes, does he or she wish to return to that job or any job? [No]
16. Does the patient believe that he or she will ever be able to resume normal life and normal functioning? [No]

If there is a combination of more than 6 "Yes" to the first 13 questions and "No" to the last three questions below or if general concerns in any one area, a referral for a detailed psychological assessment should be considered

A diagnostic nerve block may be of value, as it evaluates the involvement of the particular nerves and, thus, may provide some guidance for treatment. For example, the block itself may be beneficial, when this is the case the initially diagnostic procedure can be repeated as a treatment. If the pain is not eliminated during the block, then the source of the pain is likely not in the peripheral nerves affected by the level of the injection. However, in reality, the results often appear equivocal; for example the patient may report a slight decline in pain during the procedure for a very short period of time. Thus, the results of the diagnostic blocks are best interpreted in conjunction with other aspects of the evaluations.

Sophisticated laboratory and imaging techniques are readily available for use in detecting organic pathology. Imaging and electrophysiological studies may reveal pathology that may be addressed medically or surgically. However, for a large portion of chronic pain patients, such evaluations are typically conducted at a fairly early stage of treatment. It is common to see that these tests fail to reveal any specific pathology that would explain the presence of persistent pain or the extent of such pain. Furthermore, for significant numbers of patients, no physical pathology can be identified using plain radiographs, CAT (Computed Axial Tomography) scans, or electromyography to validate the report of pain severity. Furthermore, the relationship between pain and observed pathology by means of imaging is tenuous as reviewed previously, making the diagnostic value of these studies for chronic pain somewhat dubious.

Because of these issues, it is often not possible to make any precise pathological diagnosis or even to identify an adequate anatomical or physiological origin for the pain. Despite these limitations, however, the patient's history and physical examination remain the basis of medical diagnosis and may be the best defense against over-interpreting results from sophisticated imaging procedures. Physicians must therefore be cautious not to over-interpret either the presence or absence of objective findings. An extensive literature is available focusing on physical assessment, radiographic, and laboratory assessment procedures to determine the physical basis of pain and the extent of impairments in adults (see [134]).

Quantifying Pain Severity

In evaluating pain patients, it is critical to understand the extent of pain severity, which will serve as a baseline with which the treatment effects will be determined. Because there is no 'pain thermometer' that can provide an objective quantification of the amount or severity of pain experienced by a patient, it can only be assessed indirectly based on a patient's overt communication, both verbal and nonverbal (i.e., pain behaviors). However, even a patient's communications make pain assessment difficult, as pain is a complex, subjective phenomenon comprised of a range of factors and is uniquely experienced by each individual. Wide variability in pain severity, quality, and impact may be noted in reports of patients attempting to describe what appear to be objectively identical phenomena. Patients' descriptions of pain are also colored by cultural and sociological influences. Later in the chapter, we will discuss some commonly used self-report inventories for the assessment of pain.

Purposes of Psychological Assessment

Based on the multidimensional perspective espoused in this chapter, health care providers need to examine not only the physical source of the pain through examination and diagnostic tests but also the patient's mood, fears, expectancies, coping efforts, resources, responses of significant others, and the impact of pain on the patients' lives. The importance of these factors in understanding patients' pain has been reviewed earlier in this chapter. In short, the health care provider must evaluate the whole patient, not just a primary symptom. Regardless of whether an organic basis for the pain can be documented or whether psychosocial problems preceded or resulted from the pain, the evaluation process can be helpful in identifying how biomedical, physical, psychosocial, and behavioral factors interact to influence the nature, severity, and persistence of pain and disability.

In the remainder of this chapter, we focus on the second and third of Turk et al. [132] questions: specifically, the extent of the patient's disability and the behavioral influences on the patient's pain, distress, and suffering. Evaluating these variables begins with gathering information from the patient, via clinical interview and/or through standard assessment instruments.

Interviews

When conducting an interview with chronic pain patients the health care professional should focus on both factual information as well as patients' (and often significant others') specific thoughts and feelings. Behavioral analyses of how pain expression (e.g., verbal reports, overt behaviors) dynamically interacts with family are also important. Thus, the intent of the interview is not solely gathering of subjective information provided by the patient, but also to interpret how the information is conveyed. The patient's attitude about healthcare system and reaction to certain questions may provide an insightful clue for the person's psychological repertories.

Pain patients' beliefs about the cause of symptoms, their trajectory, and beneficial treatments will have important influences on emotional adjustment and adherence to therapeutic interventions. A habitual pattern of maladaptive thoughts will become a treatment target as they contribute to a sense of hopelessness, dysphoria, and unwillingness to engage in activity, and in turn, deactivate the patient and severely limit his or her coping resources. The interviewer should also determine both the patient's and the significant others' expectancies and goals for treatment. An expectation that pain will be eliminated completely may be unrealistic and will have to be addressed to prevent discouragement when this outcome does not occur. Setting appropriate and realistic goals is an important process in pain rehabilitation as it requires the patient to attain better understanding of chronic pain and goes beyond the dualistic, traditional biomedical model.

In order to help the patient understand the psychosocial aspects of pain, attention should focus on the patient's reports of specific thoughts, behaviors, emotions, and physiological responses that precede, accompany, and follow pain episodes or exacerbation, as well as the environmental conditions and consequences associated with cognitive, emotional, and behavioral responses in these situations. During the interview, the clinician should attend to the temporal association of these cognitive, affective, and behavioral events, their specificity versus generality across situations, and the frequency of their occurrence, to establish salient features of the target situations, including the controlling variables. The interviewer seeks information that will assist in the development of potential alternate responses, appropriate goals for the patient, and possible reinforcers for these alternatives. Observation of patients in multiple settings (e.g., in the waiting room, during the history taking, during the examination, in the presence of significant others) can provide valuable information as the behavior of patients serves a communicative function and can elicit responses from others that may influence the performance of behaviors that communicate pain, distress, and suffering along with the desire for assistance.

The interview also should include the assessment of current functional ability and how it has been impacted by pain and mental health problems. Efforts should be given to delineate the attributional cause of pain and mental health independently when possible. Many cases, however, whether functional limitations are due to pain or depression (or any other mental illness) is difficult to clarify. Many of the functional complaints, such as sleep disturbance, lack of motivation, problems concentrating and fatigue, for example, are experienced by both pain and depressed patients. Clinicians should pay attention to temporal relationships among pain, mood, and disability as well as patients' own attribution of how these variables are interlinked, in order for the treatment team to develop a reasonable starting point of therapeutic efforts.

Assessment of mood is a critical component of pain evaluation. This becomes particularly important and challenging when a clinician performs pain evaluation in the mental health settings. Most likely, the basic parameters of patients' mental health have been assessed by the time pain evaluation occurs, and psychopathology diagnoses may already have been established. The clinically relevant yet challenging part is to delineate the nature of the relationship between mood and pain. There are patients whose psychopathology and pain occur independently where successful treatment of one condition does not lead to the improvement of the other condition. This may be particularly the case when a person has had significant preexisting psychopathology prior to the pain onset. However, the majority of the cases are likely to have some interconnections of the two conditions in which vicious cycle of pain, deactivation, poor quality of life, and mood disorders perpetuates themselves. Of particular importance in these cases is to understand how the relevant psychological factors may serve as a mediator or associated factors linking between the two. Those psychological factors then can be the treatment target in the realm of cognitive-behavior therapy that is known to be effective for treating both pain and mood disorders. A caution, some of the features of depression and mood disturbance may be the result of features of a disease (e.g. weight loss, lack of energy) or prescribed medication. Thus, when using standardized assessment approach evaluating mood disorders, the provider should consider some discounting of features or elevation of the criteria used to diagnosis emotional disorders (e.g., [135]).

Another important domain of mood assessment within the pain evaluation is the history and current status of self-injurious behaviors and thoughts. The types of medications that are commonly used to treat chronic pain patients are often the choice of drug in self-imposed injuries and suicidal death [115]. Fatal accident from the analgesic use, both intentional and unintentional, has shown significant increase in recent years [28]. Research indicates that suicidal ideation is prevalent in chronic pain patients [41, 93]. Death wish, wanting to escape from pain, or wanting to have better rest, may be a factor to lead to overdosing events [93]. Thorough understanding of the historical and current suicidal and self-harming thoughts and behaviors is critical for establishing safe and effective treatment options. If the person has had a history of self-injurious attempt in the past, it is important to learn the method (e.g., overdose of prescribed medication), intent to die, the general circumstance, consequence, and how they view the event today. In the mental health setting, it would also be important to learn whether the attempt/gesture was driven by psychopathology or pain-related issues, or both. The Columbia Suicide-Severity Rating Scale (C-SSRS, [102]) is a brief screening measure that is widely used and may be worth considering in evaluating patients reporting persistent pain.

Relatedly, it is important to discuss a patient's medications during the interview, as many pain medications (particularly opioids) are associated with side effects that may mimic emotional distress. A clinician, for example, should be familiar with side effects that result in fatigue, sleep difficulties, and mood changes to avoid misdiagnosis of depression. Alternatively, clinicians might entertain the hypothesis that opioid analgesics may be used to moderate mood for some cases, particularly with patients whose pain is not affected by the medications. A general understanding of commonly used medications for chronic pain is important, as some patients also may use opioid analgesics to manage mood. Inefficacious use of medications is fairly common and addressing the optimization of the medication requires input from the behavioral and affective presentation of the patients. Additionally, potential psychological dependence and aberrant drug seeking behaviors on pain-relieving medications should be evaluated. In some states, a physician is able to obtain a record of prescriptions of controlled substances. Urine toxicology should be a part of the routine investigation as a part of the comprehensive pain evaluation to rule out substance abuse problems (including diversion) and aberrant opioid taking behaviors. Table 14.2 contains a summary of the areas that should be addressed in a more extensive psychological interview for pain patients.

Assessment Instruments

In addition to interviews, a number of psychometrically well-developed, standardized assessment instruments designed to evaluate patients' attitudes, beliefs, and expectancies about themselves, their symptoms, and the health care system have been developed and published. One survey [99] of clinicians who treated pain indicated that the five most frequently used instruments in the assessment of pain, in order of frequency, were: McGill Pain Questionnaire [88]; Beck Depression Inventory [11], and Multidimensional Pain Inventory (MPI) [74]. The McGill Pain Questionnaire and the MPI were specifically developed for use with individuals with chronic pain. In Table 14.3 we list the descriptions of these and some of the most commonly used instruments.

Standardized instruments have advantages over semi-structured and unstructured interviews. They are easy to administer, require less time, assess a wide range of behaviors, obtain information about behaviors that may be private (sexual relations) or unobservable (thoughts, emotional arousal), and most importantly, they can be submitted to analyses that permit determination of their reliability and validity. These instruments should not be viewed as alternatives to interviews; rather, they

Table 14.2 Areas addressed in psychological interviews

Experience of pain and related symptoms
Location and description of pain (e.g., ‘sharp’, ‘burning’)
Onset and progression
Perception of cause (e.g., trauma, virus, stress)
What has the patient been told about the symptoms and condition? Does the patient believe that this information is accurate?
Exacerbating and relieving factors (e.g., exercise, relaxation, stress, massage)
Pattern of symptoms (e.g., symptoms worse certain times of day or following activity or stress)
Thoughts, feelings, and behaviors that precede, accompany, and follow fluctuations in symptoms
Other somatic symptoms

Treatments received and currently receiving
Medication (prescribed and over-the-counter). How helpful have these been?
Pattern of medication use (prn, time-contingent), changes in quantity or schedule
Physical modalities (e.g., physical therapy). How helpful have these been?
Complementary and alternative (e.g., chiropractic manipulation, relaxation training). How helpful have these been?
Which treatments have they found the most helpful?
Compliance/adherence with recommendations of health care providers
Attitudes towards previous health care providers

Functional status
Current level of daily functioning in family, social, household, recreational, vocational, and sexual domains
Changes in functional levels due to pain or mood issues
Exercise (e.g., Do they participate in a regular exercise routine? Is there evidence of deactivation and avoidance of activity due to fear of pain or exacerbation of injury)? Has the pattern changed (increased, decreased)?
Sleep status (e.g., sleep latency, sustenance, quality and quantity of sleep, sleep hygiene habits, duration of sleep disturbance (e.g., did it start with pain onset?))

Compensation/Litigation
Current disability status (e.g., receiving or seeking disability, amount, percent of former job income, expected duration of support)
Current or planned litigation

Coping
How does the patient try to cope with his or her symptoms? Does patient view himself or herself as having any role in symptom management? If so, what role?
Current life stresses
Pleasant activities

Educational and vocational history
Level of education completed, including any special training
Work history
How long at most recent job?
How satisfied with most recent job and supervisor?
What like least about most recent job?
Would the patient like to return to most recent job? If not what type of work would the patient like?
Current work status, including homemaking activities
Vocational and avocational plans

Table 14.2 (continued)

Social history
Relationships with family or origin
History of pain or disability in family members
History of substance abuse in family members
History of, or current, physical, emotional, and sexual abuse. Was the patient a witness to abuse of someone else?
Marital history and current status?
Quality of current marital and family relations
Alcohol and substance use
Current and history of alcohol use (quantity, frequency)
History and current use of illicit psychoactive drugs
History and current use of prescribed psychoactive medications
The main purpose of the use (recreational vs. attempt to control symptoms)
Consider the CAGE questions as a quick screen for alcohol dependence [84]. Depending on response consider, other instruments for alcohol and substance abuse [1]
Psychological dysfunction
Current psychological symptoms/diagnosis (depression including suicidal ideation, anxiety disorders, somatization, posttraumatic stress disorder). Depending on responses, consider conducting structured interview such as the Structured Clinical Interview for DSM-IV-TR (SCID) [2]
Is the patient currently receiving treatment for psychological symptoms? If yes, what treatments (e.g., psychotherapy or psychiatric medications). How helpful are the treatments?
History of psychiatric disorders and treatment including family counseling
Family history of psychiatric disorders
Temporary relationship between pain onset and mood disturbance
Patients' view on how pain and mood are related
History of suicidal/self-harm attempts/thoughts
Current suicidal/self-harm thoughts and intent
Concerns and expectations
Patient concerns/fears (e.g., does the patient believe he/she has serious physical problems that have not been identified? Or that symptoms will become progressively worse and patient will become more disabled and more dependent? Does the patient worry that he or she will be told the symptoms are all psychological?)
Explanatory models of pain held by the patient
Expectations regarding the future and regarding treatment (will get better, worse, never change)
Attitude toward rehabilitation versus 'cure'
Treatment goals

may suggest issues to be addressed in more depth during an interview or investigated with other measures. Note that each of the instruments that we selected for inclusion in Table 14.3 has been shown to have acceptable psychometric properties.

Assessment of Pain

Although a ubiquitous phenomenon, pain is inherently subjective. The only way to know about someone's pain is by what they say or show by their behavior. Because there is no 'objective' method for assessing pain, self-report provides the gold

Table 14.3 Assessment instruments

Instrument	Domains assessed	# items	Description (output)
Pain intensity questionnaires			
McGill Pain Questionnaire (MPQ) [88]	Pain	20	78 pain-related words grouped in 20 subclasses; Respondants rank words according to pain intensity; Calculates sensory, affective, evaluative, and miscellaneous scores, and a total score ('Pain Rating Index')
McGill Pain Questionnaire – Short-Form (MPQ-SF) [89]	Pain	16	Adjectives selected from the MPQ Calculates sensory and affective scores
Pain condition-specific measures			
Neuropathic Pain Scale (NPS) [47]	Pain	10	Assesses qualities of neuropathic pain: sharpness, heat/cold, dullness, intensity, unpleasantness, and surface vs. deep pain
Pain related disability/functionality measures			
Pain Disability Index (PDI) [101]	Measures disability due to pain (degree to which patients believe pain interferes with family/home responsibilities, recreation, social activities, occupation, sexual behavior, self-care, life support activity)	7	Derives a total score
Oswestry Disability Scale [44]	Measures disability	20	Derives a total score
Pain-related psychosocial pain measures			
Chronic Pain Coping Inventory (CPCI) [66]	Illness and well-focused coping strategies	64	Calculates 8 subscales: guarding, resting, asking for assistance, relaxation, task persistence, exercising/stretching, coping self-statements, seeking social support
Vanderbilt Multidimensional Pain Coping Inventory (VCPMI) [116]	Revised VPMI: assesses ways of coping with pain	49	Calculates subscales based upon 49 items: planful problem-solving, positive reappraisal, distraction, confrontative coping, distancing/denial, stoicism, use of religion, self-blame, self-isolation

Table 14.3 (continued)

Instrument	Domains assessed	# items	Description (output)
Coping Strategies Questionnaire (CSQ) [106]	Assesses specific coping strategies (six cognitive coping strategies; 1 behavioral coping strategy)		Calculates 7 subscales: diverting attention, reinterpreting pain, coping self-statements, ignoring pain, praying or hoping, catastrophizing, and increasing activity
Fear-Avoidance Beliefs Questionnaire (FABQ) [143]	Evaluates patients' belifes about how physical activity and work may affect their back pain	16	Calculates 2 scales: fear-avoidance beliefs related to work, and fear-avoidance beliefs about physical activity in general
Pain Beliefs and Perceptions Inventory (PBAPI) [149]	Measures pain beliefs	16	Calculates 3 dimensions: self-blame, mystery (i.e., perception of pain as mysterious), and stability (i.e., beliefs about the stability of pain over time)
Pain Stages of Change Questionnaire (PSOCQ) [72]	Measures conditions that are relevant for a patients' readiness for change	30	Derives 4 stages of self-management: precontemplation, contemplation, action, and maintenance
Survey of Pain Attitudes (SOPA) [64]	Measures beliefs about pain	57	Derives 7 dimensions: control, disability, harm, emotion, medication, solicitude, and medical cure
Pain Anxiety Symptoms Scale (PASS) [85]	Assesses fear of pain across cognitive, psychological, and behavioral domains	53	Calculates 4 subscales: fear of pain, cognitive anxiety, somatic anxiety, and fear and avoidance
Pain Beliefs Questionnaire (PBQ) [40]	Assesses beliefs about pain	12	Calculates 2 subscales: organic beliefs (8 items) and psychological beliefs (4 items)
Pain Catastrophizing Scale (PCS) [127]	Examines components of catastrophizing	13	Calculates 3 components: rumination, magnification, and helplessness
<u>Multidimensional/pain-related quality of life measures</u>			
Brief Pain Questionnaire [31]	Measures pain and interference of pain with functional activities	10	Derives 2 scores: pain and interference
West Haven-Yale Multidimensional Pain Inventory (WHY/MPI) [74]	Measures pain severity, interference, support, life control, affective distress, others' responses to pain behaviors, and frequency of performance on 18 common activities	52	Higher scores on each scale reflect higher levels of that dimension; scores can be used to classify patients as 'dysfunctional', 'interpersonally distressed' or 'adaptive copers'

(continued)

Table 14.3 (continued)

Instrument	Domains assessed	# items	Description (output)
Health-related QOL measures			
Short Form-36 (SF-36) [144]	Measures vitality, physical functioning, bodily pain, general health perceptions, physical role functioning, emotional role functioning, social role functioning, mental health	36	Calculates mental health and physical health scores; higher scores = better health status
Sickness Impact Profile (SIP) [14]	Measures ambulation, mobility, body care, social interaction, communication, alertness, sleep and rest, eating, work, home management, recreation and pastime activities, and emotional behavior	136	Calculates overall dysfunction score, and summary scores of physical and psychosocial dysfunction; Range of scores = 0–100 % dysfunction

standard in assessments of pain and its characteristics. Pain assessment therefore requires that patients and participants in clinical trials describe their own experiences. Although individuals interpret measures of pain in different and somewhat idiosyncratic ways, these interpretations can be expected to remain relatively constant within people over time. As a result, they can also provide valid measures of change in pain due to treatment or time.

Pain Intensity

Self-report measures of pain often ask patients to quantify their pain by providing a single, general rating of pain: "*Is your usual level of pain 'mild', 'moderate', or 'severe'?*" or "*Rate your typical pain on a scale from 0 to 10 where 0 equals no pain and 10 is the worst pain you can imagine*." There are a number of simple methods that can be used to evaluate current pain intensity—numerical scale (NRS), verbal ratings scales (VRS), and visual analog scales (VAS).

Each of the commonly used methods of rating pain intensity, NRS, VRS, and VAS appear sufficiently reliable and valid, and no one method consistently demonstrates greater responsiveness in detecting improvements associated with pain treatment [65]. However, there are important differences among NRS, VRS, and VAS measures of pain intensity with respect to missing data stemming from failure to complete the measure, patient preference, ease of data recording, and ability to administer the measure by telephone or with electronic diaries. NRS and VRS measures tend to be preferred over VAS measures by patients, and VAS measures usually demonstrate more missing data than do NRS measures. Greater difficulty completing VAS measures is associated with increased age and greater opioid intake, and cognitive impairment has been shown to be associated with inability to complete NRS ratings of pain intensity [65]. Patients who are unable to complete NRS ratings may be able to complete VRS pain ratings (e.g., none, mild, moderate, severe). Other measures are available to assess pain in children and those who are unable to verbally communicate (e.g., stroke patients, mentally-impaired) [59].

There has been some concern expressed that retrospective reports may not be valid, as they may reflect current pain severity that serves as an anchor for recall of pain severity over some interval [53, 125]. More valid information may be obtained by asking about current level of pain, pain over the past week, worst pain of the last week, and lowest level of severity over the last week. This has also led to the use of daily diaries that are believed to be more accurate as they are based on real-time rather than recall. For example, patients are asked to maintain regular diaries of pain intensity with ratings recorded several times each day (for example at meals and bedtime) for several days or weeks. One problem noted with the use of paper-and-pencil diaries is that patients may not follow the instruction to provide ratings at specified intervals. Rather, patients may complete diaries in advance (‘fill forward’) or shortly before seeing a clinician (‘fill backward’) [126]. These two reporting approaches undermine the putative validity of diaries. As an alternative to the paper-and-pencil diaries, a number of commentators have advocated for the use of electronic devices that can prompt patients for ratings and “time stamp” the actual ratings, thus facilitating real-time data capture. Although there are numerous advantages to the use of advanced technology to improve the validity of patient ratings, they are not without potential problems, including hardware problems, software problems, and user-problems [133]. These methods are also costly and, although they may be appropriate for research studies, their usefulness in clinical settings may be limited.

Pain Quality

Pain is known to have different sensory and affective qualities in addition to its intensity, and measures of these components of pain may be used to more fully describe an individual’s pain experience [90]. It is possible that the efficacy of pain treatments varies for different pain qualities, and measures of pain quality may therefore identify treatments that are efficacious for certain types of pain but not for overall pain intensity. Assessment of specific pain qualities at baseline also makes it possible to determine whether certain patterns of pain quality moderate the effects of treatment. The Short-Form McGill Pain Questionnaire [89] assesses 15 sensory and affective pain descriptors and its sensory and affective subscales have demonstrated responsivity to treatment in a number of clinical trials (e.g., [35, 107]). Recently, an expanded version of this measure was developed, the SF-MPQ-2 covers both nociceptive and neuropathic pain descriptors and uses a 0–10 format vs. the 0–3 scale of the SF-MPQ and therefore provides increased ability to detect small differences [39].

Assessment of Overt Expressions of Pain

Patients display a broad range of responses that communicate to others that they are experiencing pain, distress, and suffering. Some of these pain behaviors may be controllable by the person, whereas others are not. Although there is no one-to-one relationship between these pain behaviors and self-report of pain, they are at least modestly correlated. A number of different observational procedures have been developed to quantify pain behaviors. Several investigators using the Pain Behavior Checklist [137] have found a significant association between these self-reports and behavioral observations. Health care providers can use observational methods to systematically quantify various pain behaviors and note the factors that increase or decrease them. For example, observing the patient in the waiting room, while being interviewed, or during a structured series of physical tasks. Behavioral observation scales can be used by patients' significant others as well.

Uses of the health care system and analgesic medication are other ways to assess pain behaviors. Patients can record the times when they take medication over a specified interval such as a week. Diaries not only provide information about the frequency and quantity of medication but may also permit identification of the antecedent and consequent events of medication use. Antecedent events might include stress, boredom, or activity. Examination of antecedents is useful in identifying patterns of medication use that may be associated with factors other than pain *per se*. Similarly, patterns of response to the use of analgesic may be identified. Does the patient receive attention and sympathy whenever he or she is observed by significant others taking medication? That is, do significant others provide positive reinforcement for the taking of analgesic medication and thereby unwittingly increase medication use?

Assessment of Emotional Distress

The results of numerous studies suggest that chronic pain is often associated with emotional distress, particularly depression, anxiety, anger, and irritability. Clearly, in the mental health settings, it is reasonable to assume that these factors are quite prominent. However, the presence of emotional distress in people with chronic pain presents a challenge when assessing symptoms such as fatigue, reduced activity level, decreased libido, appetite change, sleep disturbance, weight gain or loss, and memory and concentration deficits. These symptoms are often associated with pain and have also been considered 'vegetative' symptoms of depressive disorders. Improvements or deterioration in such symptoms, therefore, can be a result of changes in either pain or emotional distress.

Both the BDI and BDI-2 [10, 11] and the Profile of Mood States (POMS [86]) have well-established reliability and validity in the assessment of symptoms of depression and emotional distress, and they have been used in numerous clinical trials in psychiatry and an increasing number of studies of patients with chronic pain [73] and recommended for use in clinical trials [38]. In research in psychiatry and chronic pain, the BDI provides a well-accepted criterion of the level of psychological distress in a sample and its response to treatment. The POMS [86] assesses six mood states—tension-anxiety, depression-dejection, anger-hostility, vigor-activity, fatigue-inertia, and confusion-bewilderment—and also provides a summary measure of total mood disturbance. Although the discriminant validity of the POMS scales in patients with chronic pain has not been adequately documented, it has scales for the three most important dimensions of emotional functioning in chronic pain patients (depression, anxiety, anger) and also assesses three other dimensions that are very relevant to chronic pain and its treatment, including a positive mood scale of vigor-activity. Thus, administration of the BDI and the POMS are reasonable choices as brief measures of emotional distress.

As noted above, various symptoms of depression—such as decreased libido, appetite or weight changes, fatigue, and memory and concentration deficits—are also commonly believed to be consequences of chronic pain and the medications used for its treatment [48]. It is unclear whether the presence of such symptoms in patients with chronic pain (and other medical disorders) should nevertheless be considered evidence of depressed mood, or whether the assessment of mood in these patients should emphasize symptoms that are less likely to be secondary to physical disorders [150].

Assessment of Function

The poor reliability and questionable validity of physical examination measures has led to the development of self-report functional status measures that seek to quantify symptoms, function, and behavior directly, rather than inferring them. Self-report measures have been developed to assess peoples' reports of their abilities to engage in a range of functional activities such as the ability to walk up stairs, to sit for specific periods of time, the ability to lift specific weights, performance of activities of daily living, as well as the severity of the pain experienced upon the performance of these activities have been developed. There are a number of well-established, psychometrically supported generic (e.g., Short-Form 36 [144]), disease-specific (e.g., Western Ontario McMaster Osteoarthritis Index [WOMAC] [12]; Fibromyalgia Impact Questionnaire [24]; Roland-Morris Back Pain Disability Questionnaire [105]), and pain-specific (e.g., Brief Pain Questionnaire, Interference Scale [31]; Pain Disability Index [101]; MPI Interference Scale [74]) measures of functional status.

Disease–specific measures are designed to evaluate the impact of a specific condition (e.g., ability to wear clothing in patients with postherpetic neuralgia). Such specific effects of a disorder may not be assessed by a generic measure, and disease-specific measures may therefore be more likely to reveal clinically important improvement or deterioration in function that is a consequence of treatment. In addition, responses on disease-specific measures will generally not reflect the effects of comorbid conditions on physical functioning, which may confound the interpretation of change occurring over the course of a trial when generic measures are used. Disease-specific measures may be more sensitive to the effects of treatment on function, but generic measures provide information about physical functioning and treatment benefits that can be compared across different conditions and studies [37, 46]. Each of these approaches has strengths. Decisions regarding whether to use a disease-specific or generic measure, or some combination, will depend on the purpose of the assessment. For individual patients in clinical practice it would be most appropriate to use measures developed on samples with comparable characteristics. So, for example, the WOMAC might be the preferred measure of function to use with patients with osteoarthritis. If the clinician wishes to compare across a group of patients, then one of the broader-based pain-specific measures should be considered. If the assessment is being performed as part of a research study, some combination might be appropriate to compare chronic pain samples with a larger population of people with diverse medical diseases (e.g., SF-36).

Assessment of Coping and Psychosocial Adaptation to Pain

Historically, psychological measures designed to evaluate psychopathology have been used to identify specific individual differences associated with reports of pain, even though these measures were usually not developed for or standardized on samples of medical patients. However, it is possible that responses by medical patients may be distorted as a function of the disease or the medications that they take. For example, common measures of depression ask patients about their appetites, sleep patterns, and fatigue. Because disease status and medication can affect responses to such items, patients' scores may be elevated, thereby distorting the meaning of their responses. As a result, a number of measures have been developed for use specifically with pain patients. Instruments have been developed to assess psychological distress, the impact of pain on patients' lives, feeling of control, coping behaviors, and attitudes about disease, pain, and health care providers and the patient's plight ([134], see Table 14.3).

14.4 Conclusions

Pain is a complex, idiosyncratic experience. Assessment and treatment of pain can be complicated by the web of influential factors that modulate the overall pain experience and associated disability. Furthermore, traditional biomedical approaches with diagnostic tests are often not helpful because structural damage and persistent pain complaints do not necessarily coincide. Pain research in the past three decades has repeatedly shown that pain is not just a physiological phenomenon, and that a range of 'person variables', such as psychosocial, environmental, and behavioral factors, plays a significant role in determining the occurrence, severity, and quality of pain. Given the multifactorial nature of pain, adequate assessment requires an interdisciplinary team approach. In this chapter, we discussed medical, physical, and psychological assessments as well as introduced a range of self-report inventories that can be used in conjunction with interviews and medical examinations. As we repeatedly stressed, an adequate pain assessment means the evaluation of the person with chronic pain. We must not just focus on the pathology or complaint, but must reach out to understand the person and his/her well-being. Although there is no shortcut in this, the delineation of relevant medical, physical, psychosocial, and behavioral factors to pain in a patient is critical in planning and executing a successful treatment plan.

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