

**VOLUME I**

***THE ROLE OF ANGER, DEPRESSION  
AND DISABILITY IN CHRONIC FACIAL  
PAIN***

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## ABSTRACT

**Aim** - This study investigated the significance of anger and anger targets in chronic facial pain, depression and disability.

**Design** - A non-experimental, cross-sectional design was employed. The main method of data collection was self-report questionnaires, completed at one time interval. Short, semi-structured interviews were conducted with a sub-sample of participants.

**Sample** - The sample comprised of 51 patients between the ages of 18 and 65, with a history of chronic facial pain of at least 6 months duration.

**Results** - The study found high levels of anger in the sample. The most frequently reported anger targets were anger toward self and anger toward a significant other. Overall anger was found to be significantly associated with pain intensity, depression and disability. Anger toward self was significantly associated with pain intensity and depression. Pain intensity (both current and average over past week) was the only variable to emerge as an independent predictor of overall anger intensity when all the other variables were partialled out. A range of themes that were revealed to be pertinent to the experience of anger in chronic facial pain were identified.

**Conclusions** - The findings indicate that future research and clinical work should continue to focus upon the interrelationship between chronic pain and anger, both in terms of the extent and expression of anger in chronic pain sufferers, and in delineating specific interactions of anger targets. The findings of this study indicate the importance of anger toward self and a range of other negative emotions, such as guilt and self-blame in chronic facial pain patients. Such findings highlight the need to focus upon these psychological processes in the treatment of chronic facial pain.

## INTRODUCTION

**1.1 Statement of Intention**

The following introductory chapter aims to provide the context for this research study by presenting theoretical and empirical accounts of chronic pain and its relationship with depression and anger. First, the epidemiology of chronic pain will be described and an operational definition of chronic pain presented. Second, a historical overview of the conceptual models of pain will be addressed, highlighting an evolution of thought from basic, linear causal models to multicausal explanations of pain. Third, the construct of anger and its related constructs will be operationally defined and theoretical accounts of anger discussed. Empirical evidence for the coexistence of chronic pain and anger will then be presented, with particular emphasis being placed on the limited research examining the relationship between chronic pain and anger targets. Brief consideration will then be given to the role of guilt, shame and blame in anger targets. Following this, gender differences in anger will be discussed and relevant research presented. Fourth, empirical evidence is reviewed for the relationship between chronic pain and depression and the three main theories of the relationship between chronic pain and depression will be considered. Fifth, as there are a number of methodological limitations which apply to the bulk of the pain research literature, in order to avoid repetition, a section is devoted to highlighting these. Finally, the main findings of the literature in the area of chronic pain, anger and depression are summarised and the hypotheses of the current study presented.

## **1.2 Chronic pain**

In order to provide a context for the current study, this section will provide some background information about chronic pain. First, the epidemiology of chronic pain will be addressed; second, the difference between acute pain and chronic pain will be considered and an operational definition of pain provided; third, conceptual models of pain will be described and discussed, and finally empirical evidence to support the cognitive-behavioural model of pain will be discussed.

### **1.2.1 Epidemiology**

Unlike acute pain (where there is frequently an obvious cause, yet rarely are there debilitating effects) chronic, unremitting pain, with little or no possibility of cessation, is possibly one of the most profoundly distressing states experienced by humans. It is also the most frequently reported symptom to physicians and nurse practitioners. Epidemiological studies conducted in the general population suggest that the prevalence of chronic pain ranges from 2% to 40% (Ver haak, Kerssens, Dekker, Sorbi & Bensing, 1998). Research also shows that approximately 13% of adults under 65 years in the UK suffer from chronic pain (Croft et al., 1993) and it has been estimated that several million workdays per year are lost as a consequence of chronic pain conditions (Pearce & Mays, 1994). However, despite this, chronic pain remains a poorly understood problem which is frequently misdiagnosed (Wade, Price, Hamer, Scwartz, & Hart, 1990).

### 1.2.2 Definition

Acute pain is short-term and rarely associated with psychological difficulties. An example of acute pain is the sharp pain experienced following a cut or a burn. In contrast, chronic pain persists after the normal healing time and is present for at least six months (for example, the nagging pain of rheumatoid arthritis). With the increased awareness that chronic pain has a different cause and course from acute conditions, there have been changes in how pain is defined. Forty years ago medical textbooks defined pain simply as a sensory experience caused by stimuli that caused injury. However, it was apparent that regardless of whether or not there was objective evidence of nerve or tissue damage, all pain had emotional correlates. Consequently, groups such as The International Association for the Study of Pain (IASP) re-defined pain in a way that emphasises the experience as: always individual to the sufferer; always unpleasant; and like all unpleasant experiences, having emotional consequences. Thus, for the purposes of this study, pain is defined as: *'an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage'* (IASP, 1979).

This shift away from explanations of pain as a solely sensory experience, to considering emotional, behavioural, social and cultural factors is reflected in pain models developed over the past forty years. As these developments have played a crucial role, both in our understanding of the nature and treatment of chronic pain, and in directing chronic pain research, they are important to consider in the context of this present study. Therefore, the following section will outline the main models of pain.

### **1.2.3 Conceptual models of pain: A historical overview**

Historical writings show pain as being viewed either as a wholly psychological or a wholly sensory phenomenon. Aristotle (cited in Fulop Miller, 1938), for example, conceptualised pain as an emotion and the Stoic philosophers considered that pain could be overcome by rational repudiation, through logic and reasoning. In direct contrast, the view that predominated throughout the latter part of the 1800s was Descarte's classical dualist approach (cited in Melzack, 1973). This view was based upon the notion that pain was a purely sensory phenomenon, determined exclusively by noxious sensory input.

By the early 20<sup>th</sup> century, the isomorphic relationship between the extent of tissue damage and the intensity of pain was well established. Sensory models provided the basis for pain research and management of pain, and little attention was given to psychological factors which were considered mere reactions to pain (Bonica, 1983). Despite this being the dominant view of the time, some psychoanalytic and psychiatric practitioners continued to consider the role of emotional or behavioural factors in their treatment of 'puzzling' chronic pain (Merskey and Spear, 1967).

By the late 1950s researchers were beginning to report examples of pain which challenged the traditional sensory explanation (Melzack & Wall, 1986). These included phantom limb pain, pain relief from placebo and studies of soldiers who required little or no analgesia for their war injuries (Beecher, 1956). Thus, by the middle of the 20<sup>th</sup> century alternative models of pain began to offer an insight into

the observation that sensory input and pain were not necessarily related. These models and associated theories are described below.

### ***1.2.3.1 Psychodynamic models of pain***

From a psychodynamic perspective, pain which does not have an organic explanation is a defence against unconscious psychic conflict. According to this view, 'emotional pain' is more bearable when displaced onto the body; thus, emotional disturbance finds expression through pain. Therefore, pain may be associated with a wide range of difficulties, including defence against loss or threatened loss, early childhood trauma and deprivation and repressed hostility and aggression (Bond & Pearson, 1969; Merskey & Boyd, 1978; Hughes & Zimin, 1978).

In an attempt to explain the conversion of psychological disturbances into bodily pain, comprehensive theories have been presented by two psychoanalytic writers. Szasz (1957) suggested that the ego perceives the body as an object, and that the individual reacts to the body as something outside the self. Thus, feelings are projected onto the body as though onto another person, with pain experienced as an attack inflicted by the body on the suffering individual. According to Szasz, the experience of bodily pain substitutes for grief over the loss of a loved one or for the loss of a limb in the case of an amputation. Therefore, it is argued that pain allows the individual to deny or minimise anxiety associated with real loss. Furthermore, Szasz proposes that when an individual feels guilt for aggressive feelings towards the loss of a loved one, pain provides a meaning to expiate guilt. Pain is therefore understood to be a communication at several levels, including expression of aggression and punishment of guilt through suffering (Szasz, 1957).

Engel (1959) offered a developmental theory to explain pain. Engel argued that from birth the individual builds a 'library' of pain experiences which originate from peripheral stimulation. He suggests that throughout human development, pain acquires a meaning which is derived from the context in which it occurs and, over time, these meanings themselves may become triggers for pain. For example, peripheral stimulation causing an infant to cry reunites him/her with a love object (the mother). Engel also proposes that pain is linked with punishment in childhood and that punishment serves to expiate guilt. He suggests that for some individuals these early associations create a position in which he or she will use pain unconsciously to resolve developmental conflicts and to restore psychic balance. Engel (1959) referred to these as cases of psychogenic pain, labelled the patients as 'pain prone' and characterised them by a specific personality profile. Since Engel initially presented his theory, psychogenic explanations of undiagnosed, intractable pain have been widely supported in the literature (Feinmann, Harris, and Cawley, 1984; Violon & Giurgea, 1984; Catchlove, 1983) and a number of studies have attempted to identify the characteristics of the 'typical' patient with chronic pain (Almay, 1987; Blazer, 1980-81; Woodforde & Merskey, 1972). However, over the past two decades simple psychogenic views of pain have been challenged, as has the view that pain patients are a psychologically homogeneous group (Tauschke, Merskey & Helmes, 1986; Watson, 1982; Dworkin, Richlin, Handlin & Brand, 1986; Robinson, Swimmer, & Rallof, 1989). Although psychodynamic theories of pain have been heavily criticised, it should be highlighted that these theories do not lend themselves readily to empirical research, and therefore there is little research evidence available from which to draw conclusions. However, psychodynamic

theories and models of pain undoubtedly highlighted the importance of psychological factors at a time in history when treatments for pain were largely based upon the medical model.

### ***1.2.3.2 The Gate-Control Model of Pain***

The first pain theory that incorporated both psychological and physiological factors was Melzack and Wall's gate-control theory (1965). The gate-control theory emphasised the importance of both the central and peripheral nervous systems in pain. It proposed that the *experience* of pain as opposed to the stimulation of pain receptors (noiception) involves cognitive processing. This multidimensional model of pain received a great deal of interest by pain researchers, and empirical support for the model radically changed the emphasis of pain treatment and research (Turk, Meichenbaum & Genest, 1983).

### ***1.2.3.3 Behavioural Models of Pain***

Fordyce's (1976) operant conditioning model was the second model to have a major impact on current pain treatments. Behaviour theory defines pain by the presence of observable actions or 'pain behaviours'. Therefore, "*. . . for the behaviourist, the crying (plus the kicking, the facial expression and other overt activities) is itself the pain*" (Rachlin, 1985, p.48). According to Fordyce (1978), acute pain is a reflexive response to an antecedent stimulus (tissue damage). The respondent pain may evolve into operant and persisting pain if the environment offers pain contingent reinforcement. Fordyce goes on to argue that pain behaviour persists because of positive or negative reinforcement.

#### ***1.2.3.4 Cognitive-Behavioural Models of Pain***

Cognitive behavioural models are based upon the assumption that beliefs, interpretations and perceptions of events determine feelings, moods and, ultimately, behaviour. Although Melzack and Wall's (1965) gate-control theory identified the importance of cognitive, affective and sensory factors in understanding pain, Turk and Rudy (1983) expanded upon the crucial importance of examining how cognitive factors combine or interact with sensory factors to define pain. They also highlighted the importance of cognitive processes in determining and redefining pain perception in individuals who are forced to tolerate unrelenting pain, with no prospect of resolution. A valuable contribution of the cognitive-behavioural approach is the emphasis on the attitudes and beliefs of patients regarding: their understanding of their situation; of the health care system; of appropriate or acceptable responses to pain; of their own coping mechanisms; and of their response to stress (Turk and Rudy, 1983). According to this model, the patient's cognitions interact with sensory phenomena, behavioural responses and emotional factors to result in the experience of pain. Furthermore, it is hypothesised that both adaptive/maladaptive modes of thinking, feeling and behaving can develop as a consequence of other people's responses to the patient's behaviour.

#### ***1.2.3.5. Empirical evidence to support the cognitive-behavioural model of pain***

Research into the application of cognitive-behavioural models in chronic pain has demonstrated positive results. For example, in studies examining pain beliefs and measures of functioning among chronic pain patients, pain control appraisals have been positively related to psychological functioning. Jensen and Karoly (1991)

combined a measure of patients' belief in personal control over pain (control scale from the Survey of Pain Attitudes (SOPA): Jensen & Karoly, 1989) with three other patient ratings of perceived control over pain and its effects. They found pain control appraisals to be positively related to psychological functioning in a heterogeneous group of chronic pain patients. They also found that stronger beliefs in the ability to control pain were related to higher activity level, but only for those patients reporting relatively low levels of pain. In a further study, Jensen, Turner, Romano & Lawler (1994) administered the Sickness Impact Profile, the Survey of Pain Attitudes and measurements of pain, medical service utilisation and demographic characteristics to 241 chronic pain patients. The beliefs that emotion affects pain, that others should be supportive and helpful when one experiences pain and that one is disabled with pain, were associated positively with psychosocial dysfunction. The belief that one is disabled and that activity should be avoided because pain signifies damage was also positively associated with physical disability. Such findings are generally consistent with the cognitive behavioural model, although the direction of causality remains an issue.

The theories and models presented above provide an overview of thought about the cause and course of pain over the past fifty years and highlight an evolution of thought from basic, linear causal models to multicausal explanations of pain. Of particular interest are the relationships between cognitive-affective processes and pain, and there appears to be a good deal of empirical evidence to implicate the role of affect in the experience of pain.

The main focus of this current study is the role of negative affect in chronic pain; more specifically, anger and depression. The next section will describe these two relationships by presenting relevant theoretical and research literature. Without doubt, it is the significant associations between chronic pain and depression that have generated the most research interest, and this is one relationship that will be considered in the current study. However, the primary focus of this study is the relationship between chronic pain and anger, and the next section will focus upon this relationship. An overview of the emerging interest in this area will be provided, followed by an operational definition of anger and presentation of a number of theories of anger. Empirical evidence for the co-existence of chronic pain and anger will then be considered, followed by an overview of the current research on chronic pain and anger targets. The possible role of guilt, blame and shame in relation to anger targets will then be briefly discussed and, finally, empirical evidence for gender differences in the area of anger will be outlined.

### **1.3 Anger**

This section will be concerned with the primary focus of this study; the construct of anger. In order to provide clarity, the two concepts which have most frequently been compared with and/or used interchangeably with the concept of anger will be discussed and operationally defined. A number of theories of anger will then be described and discussed.

### **1.3.1 Concepts relating to anger**

#### ***1.3.1.1 Aggression***

Berkowitz (1993) stated that a defining characteristic of aggression is that it is goal directed; that is, motor behaviour that has a deliberate intent which is to harm, hurt or injure another person or object. However, it is clear that there are examples in everyday life of forceful goal-directed behaviour which are not instances of aggression even if harm does occur, because there is no intention to harm. For example, pushing someone out of the way of an oncoming vehicle may result in injury, although the intent was to avoid harm coming to that individual.

In contrast to Berkowitz's view, Bandura's (1973) behavioural perspective endeavoured to avoid internal concepts such as intention, and instead considered aggression to be any harmful behaviour that violated social norms. Again, however, there are difficulties with this definition. For example, some parents feel that in order to discipline and socialise their children smacking is necessary, whereas others may consider smacking children as an aggressive, harmful behaviour which violates social norms.

A further class of behaviours are those which appear to be aggressive, though the intent is actually physically non-injurious. For example, the school bully may verbally abuse and threaten other children to coerce, control and manipulate what others think of him (i.e. impression management) or preserve dominance and power within a hierarchy (Patterson, 1979; Tedeschi, 1983). The intent of such behaviours might be non-injurious physically, and therefore cannot be regarded as instances of anger or aggression. Kasson and Sukhodolsky (1995) propose that such examples

can be seen as hybrid behaviours driven by a desire to arrange the environment in a comfortable way, and that displays of true aggression would only occur as 'escalations' if there is non-compliance from the school bully's victim.

It is not clear whether verbal behaviour alone is included in the definition of aggression proposed by Berkowitz (1993). However, this is crucial because if a person's behaviour is limited to a loud voice with aversive content, it has to be decided whether this is an instance of anger or so called 'verbal aggression'.

### ***1.3.1.2 Hostility***

Hostility has been described as an attitudinal bias that predisposes the individual to consider others to be undeserving, untrustworthy, immoral (Barefoot, 1992) and likely sources of provocation and mistreatment (Smith and Christensen, 1992). The verbal behaviour associated with hostility (seen in common phrases emitted during anger outbursts, such as "*I hope he drops dead*") are a marker for anger. There is some evidence of an overlap of the constructs of hostility and anger. For example, as hostility fosters perceptions of threat and antagonism that can increase the likelihood of anger, habitual anger is sometimes referred to as hostility (Buss, 1961; Siegel, 1986). However, generally, hostility is viewed as a trait or enduring disposition, rather than anger, which it is suggested is a strictly an emotional state or event.

Given that these constructs relate both to anger and chronic pain, an operational definition of anger will be provided. For the purpose of this study, therefore, anger is defined as:

*" a feeling involving a belief that a person one cares for has, intentionally or through neglect, been treated without respect, and a want to have that respect re-established" (Smedslund, 1992).*

### **1.3.2 Theories of anger**

As highlighted by Fernandez and Turk (1995), emotions can be evaluated or categorised along the dimensions of valence and intensity, and anger is no exception. Anger is essentially an unpleasant experience and in being so has negative valence. In terms of intensity, anger can range on a continuum from mild (commonly labelled 'annoyance') to considerably high levels of intensity (commonly labelled 'rage'). Fernandez and Turk (1995) go on to state that what determines anger intensity are numerous appraisals concerning the particular situation. Such appraisals include the extent to which the event/situation is unpleasant, the degree of judged blameworthiness and the departure of the agent's action from person/role-based expectations (Ortony, Clore & Collins, 1988). These appraisals are crucial in understanding the nature and dynamic of anger and offer a framework for organising the abundance of attributions (both about agents and their actions) as reported by chronic pain patients.

There is currently no agreed definition of anger. However, in accordance with other emotional states, anger is deemed to have two defining features. The first of these is cognitive appraisal. In outlining the cognitive structure of emotions, Ortony et al. (1988) propose that the emotion of anger is an amalgam of attributions about the well-being of oneself with the action of an agent; for example, disapproving of someone else's blameworthy actions (reproach) and being disgruntled about the

related undesirable event (upset or distress). The second defining feature of emotional states is 'action tendency'. Frijda (1986) suggests that there are many unique action tendencies associated with anger; for example, antagonistic or aggressive tendencies designed to seek redress, re-establish control or remove obstruction (Frijda, 1986; Frijda, Kruijpers, & ter Schure, 1989). This fusion of a specific cognitive appraisal and action tendency, distinctive to anger, is consistent with the classical definition of anger derived by Smedslund (1992) (see section 1.3.1.2).

The cognitive neoassociationist view, however, asserts that anger is not always generated by cognitive mediation. Berkowitz and Heimer (1989) cite examples of pain (stubbing one's toe), noise (listening to someone snoring) and unpleasant temperatures (exposure to hot weather) inducing anger, even in the absence of reasonable blame. Berkowitz (1993) argues that anger occurs in such cases because they are *physiologically* offensive rather than because we ascribe any psychological significance to them. It could also be argued that in situations such as these, people use unreasonable cognitions in order to assign blame to unblameworthy targets. For example, "*that stupid table leg shouldn't be there*" or "*he's snoring on purpose, just to annoy me*".

In providing a caveat to the cognitive-neoassociationist perspective Lazarus (1984; 1991) points out that information processing involves numerous events (such as anticipation, attention and judgements), and that these may occur rapidly and often below the threshold of awareness. Fernandez and Turk (1995) point out that the production of anger in response to aversive stimuli, such as pain, may involve

varying degrees and levels of cognitive mediation, many of which may not be accessible to consciousness.

Finally, as both emotional arousal and muscle tension are associated with angry states, it is also worth considering the relevance of Melzack and Wall's (1965) gate-control theory (as described in section 1.2.3.2 of this chapter) in examining possible reasons for the strong relationship between chronic pain and anger.

#### **1.4 Empirical evidence for the coexistence of chronic pain and anger**

This section will review the relationship between chronic pain and anger.

Specifically, it will describe and discuss quantitative studies examining the relationship between chronic pain and anger, and the relative importance of anger in chronic pain compared with other negative affects, such as depression and anxiety.

Finally, four significant anger themes emerging from qualitative research in the area of chronic facial pain will be described.

##### **1.4.1 Quantitative research**

Anger-related variables have long been implicated in the development and course of adverse health conditions (such as cardiac disease and high blood pressure), and the relationship between anger and chronic conditions such as arthritis (Moldofsky & Chester, 1970) and dysmenorrhoea (Elliot & Harkins, 1992) have been widely researched. There is also a good deal of anecdotal evidence to suggest that the experience of anger is highly significant in the experience of chronic pain.

Clinicians frequently report encountering pain patients with high levels of anger, many of whom fail to benefit from pain treatment programmes due to anger about

the severity and chronicity of their condition, the quality of care they receive and the impact their pain has on other aspects of their lives (Fernandez and Turk, 1995).

Despite the fact that anger is consistently reported as one of the most salient variables in the affective experience of chronic pain, it is also one of the most under-researched (Kinder & Curtiss, 1988; Gaskin, Greene, Robinson & Geisser, 1992; Fernandez & Turk, 1995). However, the limited research that has been carried out to date provides convincing evidence that anger plays a critical role both in the development and maintenance of chronic pain conditions. Summers, Rapoff, Varghese, Porter and Palmer (1992) asked patients with spinal cord injuries to complete the Profile of Mood States (McNair, Lorr & Droppleman, 1971) and found that anger and hostility explained 33% of the variance in pain severity, whereas depression (as assessed by the Beck Depression Inventory) and anxiety (as assessed by the Spielberger Trait Anxiety Inventory) did not add to the variance accounted for by anger. Significant positive associations between anger, pain severity and unpleasantness, emotional distress and perceived disability have also been identified (Gaskin et al., 1992; Summers et al., 1992; Kerns, Rosenberg and Jacob, 1994; Duckro, Chibnall & Tomazic, 1995).

Wade et al. (1990) examined the relative contribution of frustration, fear, anger and anxiety to pain-related unpleasantness and depression in 143 pain patients. Patients completed the Minnesota Multiphasic Personality Inventory (MMPI), Beck Depression Inventory (BDI) and 7 visual analogue scales (VAS) (measuring the degree of emotional unpleasantness of the pain, pain intensity, anxiety, frustration, fear, anger and depression). Multiple regression analyses were used to elucidate the relationships between negative feeling VAS, pain related unpleasantness and indices

of depression. Anxiety and frustration were found to predict pain unpleasantness, after controlling for pain intensity. Regression analyses indicated that anger was an important concomitant of the clinical depression that pain patients experience.

Although much of the research outlined above is concerned with back pain, there is also some evidence for relationships between headache, depression and anger.

Hatch, Schoenfeld, Boutros, Seleshi, Moore and Cyr-Provost (1991) administered the MMPI Cook –Medley Scales (Cook & Medley, 1954) and the State-Trait Personality Inventory (Spielberger et al., 1979) to a sample of individuals with tension headache (experiencing, on average, five headaches per week for 8.5 years). Compared to headache-free controls they were aroused to anger more frequently and were more likely to suppress these angry feelings. Although the authors seem to suggest an etiologic role of anger in producing headaches, their data was correlational and it could therefore be argued that frequent angry states are a consequence of headaches. Tschannen et al. (1992) and Duckro et al. (1995) conducted path analyses of headache sufferers which revealed direct relationships between depression and anger (either expressed outwardly, or inwardly suppressed), and prospective longitudinal designs have also demonstrated bi-directional relationships between depression and headache (Breslau, Davis & Andreski, 1991). Although, to date, the influence of anger in such designs has not generated a great deal of research interest, possible links between anger and depression indicate the need for further investigation.

#### **1.4.2 Qualitative research**

Dodds (2001) undertook a qualitative methodology, exploring the experience and expression of anger in six female chronic myofascial pain patients. The study

involved the administration of empirical measures (used for descriptive purposes) and a semi-structured interview. The constant comparative method was employed to analyse transcripts from the interviews. Significant themes that emerged included: (i) anger at the medical community; in particular citing feelings of not being taken seriously and being 'talked down to' by doctors, (ii) increased levels of anger following the onset of pain, (iii) awareness of bodily changes associated with feelings of anger and frustration, and (iv) avoidance of potentially conflictual situations and 'holding things in'. The authors concluded that these findings highlighted specific aspects of anger experience in women with myo-facial pain that could be the focus of future research.

Based upon the evidence presented above, for the present study it is hypothesised that a *significant proportion of chronic facial pain patients will report feeling some degree of anger at the time of evaluation.*

## **1.5 Chronic pain and anger targets**

When a person experiences pain, there are a number of potential sources to which that individual might direct angry feelings. For example, an individual involved in a car accident might feel anger toward the negligent driver, toward themselves for not being quick enough to avoid the oncoming vehicle, or toward their employer for failing to provide enough sick leave. Fernandez and Turk (1995) proposed that the type of target towards which patients feel angry may be crucial in understanding the strong relationship between pain and anger. A number of researchers have highlighted that anger is often regarded as an emotion generated by disapproval of blameworthy actions that have negative consequences for the self (Ortony et al.,

1988) or interpretations of injustice and mistreatment (Averill, 1982; Weiner, 1985). Ben-Zure and Breznitz (1991) suggested that other relevant appraisals include the intentionality of action, the level of damage inflicted and the preventability of consequences. It is true that chronic pain can arise as a consequence of a situation in which someone (health professional, employer, negligent driver or oneself) may be considered to blame. For example, in the case of chronic facial pain patients, the oral surgeon may be blamed for carrying out a dental intervention which may have caused or exacerbated the pain. Alternatively, the individual could feel blame and/or anger toward oneself for agreeing to the intervention. Fernandez and Turk (1995) argue that if the damage is seen as the result of something intentional and preventable, then anger will be intensified.

On the basis of interviewing patients and clinicians, Fernandez and Turk (1995) identified a range of cognitive appraisals associated with the emotion of anger in chronic pain patients. They presented two groups of interrelated cognitive appraisals that they suggested were associated with anger in chronic pain sufferers: the agent (or the target) of anger and the action of the agent (the attributed reason for the anger). The ten identified categories were (i) the causal agent of injury, (ii) health care providers, (iii) the legal system, (iv) mental health professionals, (v) insurance companies/social security system, (vi) employer, (vii) significant others, (viii) God, (ix) Self, (x) the whole world. Fernandez and Turk (1995) hypothesised that the targets toward which patients experience angry feelings might be important in understanding the relationship between pain and anger. They further proposed that the presence of intensity of anger toward different targets may be differentially related to the chronic pain experience.

Okifuji, Turk and Curran (1999) tested these hypotheses in a group of 96 low back and leg pain patients referred to a multidisciplinary pain centre for evaluation. Prior to evaluation patients were asked to complete a demographics questionnaire, the Targets of Anger Scale (TAS) (adapted from Fernandez, Moon, Urrutia, Saliaas & Johnson, 1996), the Pain Severity Scale of the Multidimensional Pain Inventory (MPI) (Kerns, Turk & Rudy, 1985), the Center of Epidemiological Study-Depression Scale (CES-D) (Radloff, 1977) and the Oswestry Disability Inventory (ODI) (Fairbank, Couper, Davies & O'Brien, 1980). They found that 69% of patients reported feeling angry and that the majority of patients reported feeling angry toward themselves (74%) and their health care providers (62%). Mean anger ratings were found to be relatively high for each of these targets (4.46 and 3.5 respectively). Intensity of overall anger was found to be significantly related to pain ( $r=0.35$ ), depression ( $r=0.52$ ) and disability ( $r=0.26$ ). Anger toward oneself was also found to be related to pain ( $r=0.38$ ). Based upon these findings, for the current study the following hypotheses were put forward: (i) *Among those individuals reporting anger, the most common anger targets will be anger toward themselves and anger toward health care professionals;* (ii) *High levels of overall anger will be associated with increased severity of pain;* (iii) *High levels of overall anger will be associated with high levels of depression;* (iv) *High levels of overall anger will be associated with increased levels of perceived disability;* (v) *High levels of anger towards oneself will be associated with increased severity of pain;* and (vi) *Pain intensity, depression and disability will independently add to the prediction of overall anger.*

To establish the importance of anger toward different targets in predicting pain, depression and perceived disability in chronic pain, Okifuji et al. (1999) then conducted a multiple regression analyses. Out of the nine anger targets, anger toward oneself was found to be a particularly important contributor to the chronic pain experience. The intensity of anger toward oneself was significantly related to depressed mood. It added 27% of the variance, and overall anger intensity added a further 10% of the variance accounted for in the variability in depressed mood. In light of this finding, for the current study it was hypothesised that *high levels of anger towards oneself will be associated with high levels of depression.*

Interestingly, a relatively weak association was found between anger and disability in the Okifuji et al. (1999) study, leading the authors to suggest that anger may have an indirect effect upon disability via depression.

In sum, although not all anger targets were found to be related to pain, anger directed toward oneself seemed to be an important contributor to the aversiveness of pain experience (in particular, to pain severity and depression). No other targets were found to be related to depression and the authors suggest that this finding could be a consequence of the relationship between depression and inhibited anger (Tschannen et al., 1992; Duckro et al., 1995). For example, it could be argued that inhibited anger toward oneself might have a more negative impact upon mood than inhibited anger toward health care providers.

In considering possible mechanisms that might explain the relationship between anger toward oneself and depression, the authors highlight the fact that both anger toward oneself and depression share a common underlying mechanism; negative

attributions of self (Abramson, 1978). The emotions typically associated with feeling angry towards oneself tend to be highly uncomfortable and stigmatising (e.g. shame, self-blame). However, research into shame and attributions of blame for pain among chronic pain patients suggests that these patients do not usually blame themselves for their pain (DeGood & Kiernan, 1996). Such findings reflect the fact that pain patients do not generally see themselves as the *cause* of their pain. However, they may still feel angry and/or blame themselves for a host of other reasons such as not *coping* well with their pain, for the negative impact their pain has on their work, leisure and relationships, and for not having found a resolution for their pain. What does seem plausible, is that a perception of pain as fundamental in an individual's life, a decrease in functioning over time and a sense of helplessness may all lead to an increased likelihood of negative attributions about oneself. Cognitive behavioural theory would suggest that distorted thinking about oneself stimulates both depressed mood and anger. This contention appears to be supported by finding that overall anger, as well as anger toward oneself, is significant in depression in chronic pain (Okifuji et al., 1999).

In sum, the significant association between pain severity, depression and anger toward oneself suggests that the previous emphasis on assessing the chronic pain patient's anger intensity and anger management style may not adequately capture the level of distress associated with an individual's pain condition. Anger targets are of particular clinical interest because one might hypothesise that the rehabilitation process may be affected by the focus of an individual's anger. For example, anger toward health professionals may adversely affect compliance to treatment programmes and undermine the therapeutic alliance that is critical to treatment

success. Equally, a high level of anger with a partner may result in relationship disharmony, and this might be usefully addressed within therapy.

### **1.5.1 The role of guilt, blame and shame in anger targets**

In considering the anger target variable and, in particular, evidence of the tendency for pain patients to report feelings of anger toward themselves and/or health professionals, the role of guilt, blame and shame in illness is worthy of consideration. Finerman and Bennett (1995) highlight the significant shift in Western and industrialised populations with regards to a 'medical world view'. They point out that social institutions are increasingly regulating and monitoring individual's health-related behaviours and that such policies reflect the emergence of new explanatory models in which the onset and outcome of illness are attributed to the afflicted, who are open to blame for personal failures which 'caused' their condition (Kirmayer, 1988).

Finerman and Bennet (1995) suggest that several (often conflicting) factors encourage recourse to blame and responsibility as explanatory models for illness. First, they argue that a degree of projection and denial directs blame attribution. Both anecdotal and research evidence informs us that it is not uncommon for individuals to look for external targets on which they can place blame for illness. Furthermore, this search for a scapegoat is fuelled by both academic research and media accounts of health-care, which commonly direct responsibility to specific, often amorphous groups, such as social classes, the National Health Service or the government.

Second, an increasing professional and public awareness of the links between lifestyle and illness influence attributions of responsibility and blame in illness. A consequence of this increasing body of knowledge is that personal responsibility for health becomes paramount. As such, poor health is more likely to be seen as the result of indulgence in risky, unwise or unsafe behaviour, whether it be a poor diet leading to obesity or a stressful job leading to chronic headaches.

A third factor which Finerman and Bennett (1995) argue affects views of responsibility, blame and shame concerns 'sick role perceptions'. The sick role is based upon Parson's (1951) model which suggests that an individual's failure to perform is excused if that person is physically or emotionally ill. A number of research studies have demonstrated how certain groups of patients are denied sick role status. Waxler (1980) notes that the sick role label may be denied to those who manifest symptoms which fail to meet established diagnostic criteria. Chrisman (1977) found that patients with ambiguous or chronic health problems are also less likely to maintain the benefits of sick role status. Furthermore, such patients were commonly held responsible for their illness by health care professionals (Alexander, 1982; Helman, 1985). Thus, such patients are not only forced to tackle health threats, but are also at increased risk of social stigma and/or sickness-induced shame (Waxler, 1980).

### **1.5.2 Anger management style**

In considering the relationship between chronic pain and anger, the concept of anger management style is worthy of a mention. Anger management style is one dimension of anger which is defined as the manner in which angry feelings are

typically handled. Spielberger et al. (1985) proposed that individuals have a tendency toward either verbally expressing and displaying anger (directed outwards) or, alternatively, to inhibit the expression of anger and suppress their feelings of anger (directed-inwards). In Kinder and Curtiss's (1988) discussion of two studies on anger and pain, they concluded that how pain patients expressed anger was a significant factor in the development, maintenance and adjustment to chronic pain conditions.

### **1.5.3 Gender differences in anger**

The prevalence of anger in chronic pain patients may need to be qualified by gender differences. Gender difference in the relationship between anger and a variety of health-related variables, including pain, have been found. For example, in a study of 101 musculoskeletal pain patients, Burns, Johnson, Devine, Mahoney and Pawl (1998) found that men's tendency to express anger predicted poor outcome in functional capacity, whereas anger suppression adversely affected improvements in general activity and depressed mood. Among women, anger management style did not significantly predict changes in any outcome measure. However, most studies examining the relationship between chronic pain and anger have either failed to report analyses concerned with gender difference or have not had a sufficient female sample to allow analysis (Wade et al., 1990; Hatch et al., 1991).

Okifuji et al. (1999) did explore gender differences and found that male and female patients were comparable both in their expression of anger, anger intensity and specific anger targets. As Okifuji et al. (1999) point out, such findings are interesting in that they seem to suggest that despite differences in male and female socialisation

processes, chronic pain presents a powerful situational basis for the experience and acknowledgement of anger, regardless of gender.

### **1.5.3 Chronic pain and anger: A summary**

The empirical research conducted over the past few decades in the area of pain and anger reveals that anger is a multifactorial construct, worthy of further investigation. Okifuji et al. (1999) suggest that such research should be focused upon delineating specific interactions among different factors of anger and determining facilitative types and detrimental types of anger in chronic pain. Such findings could have major implications for those health professionals working with chronic pain patients, particularly in the areas of designing specific assessment and treatment protocols. An area of particular interest in understanding the relationship between pain and anger is that of anger targets. Evidence demonstrating increased pain severity and depression in patients with high levels of anger towards themselves, raises questions relating to the role of cognitive appraisals in pain patients and, in particular, the role of blame, guilt and shame in chronic pain. Alongside anger, the construct of depression has also been considered crucial in understanding the cause and course of chronic pain conditions. The relationship between chronic pain and depression has however, generated a good deal more research interest than that of chronic pain and anger. As the relationship between chronic pain and depression is the secondary focus of this present study, it will be examined in greater detail in the next section.

### **1.6 Chronic pain and depression**

This section will review the relationship between chronic pain and depression. First, prevalence and severity estimates of depression in chronic pain populations will be

presented; second, empirical evidence for the co-existence of chronic pain and depression will be discussed; and third, three theories of the nature of the relationship between chronic pain and depression will be examined.

### **1.6.1 Prevalence and severity of depression in chronic pain populations**

Because of methodological variability across studies of pain and depression, the reported prevalence of depression among chronic pain patients has varied widely, from 10% to 100% (as reported in Romano & Turner, 1985). Lindsay and Wyckoff (1981) reported that 87% of 300 pain clinic patients met the Research Diagnostic Criteria (RDC; Spitzer, Endicott and Robins, 1978) for depression. This contrasts with Kramlinger, Swanson and Maruta's (1983) study of 100 pain patients on a chronic pain ward where, according to the RDC, 25% were judged to be definitely depressed, 39% probably depressed and 36% not at all depressed. Marbach, Richlin and Lipton's study (1983) revealed moderately elevated levels of depression in patients with face or back pain as assessed by the depression scale of the Institute of Personality and Ability Testing (IPAT), whereas Watson (1982) found that the mean Minnesota Multiphasic Personality Inventory (MMPI) Depression scale of 144 pain patients was at the borderline of clinical significance.

Generally, studies have found that chronic facial pain patients have lower levels of depression than other groups of pain patients. In a study examining the nature and extent of psychological difficulties among diagnostic subgroups of temporomandibular disorder (TMD) patients, relatively low levels of depression (as measured by the Beck Depression Inventory) were found. Specifically, those suffering from primary myalgia pain and primary temporomandibular joint pain were

found to be in the 'none or minimal' depression range, and those patients with combined myalgia and temporomandibular joint pain were found to be in the mild to moderate range.

### **1.6.2 Prevalence of pain in depressed patients**

Lindsay and Wyckoff (1981) examined the incidence of pain in a sample of depressed patients and found that 59% complained of pain of at least 3 months duration. Controlled studies of the prevalence of pain in depressed patients have been few and far between. Mathew, Weinman and Mirabi (1981) compared depressed patients with age and sex matched health controls. They examined selected self-reported symptoms and although duration of pain was not assessed, rates of recent headache and chest pain were reported to be significantly greater in the depressed group.

It is worthy of note that despite the fact that much research attention has been focused on the links between chronic pain and depression, there are some limitations in the studies that have been undertaken. For example, most of the studies examining the relationship between chronic pain and depression have involved determining the prevalence of depression in chronic pain patients or the prevalence of pain complaints in people suffering from depression. Romano and Turner (1985) suggest that controlled research design, looking at depression rates in patients with and without chronic pain, or rates of chronic pain in depressed and non-depressed groups, would be useful in gaining a better understanding of the pain-depression relationship.

### **1.6.3 Theoretical considerations of the nature of the relationship between chronic pain and depression**

A number of interesting hypotheses have been put forward in an attempt to explain the strong relationship between chronic pain and depression. Those that have received the most attention will be presented in the following section.

#### ***1.6.3.1 The Diathesis-Stress Framework***

Using a cognitive-behavioural model of depression, Banks and Kerns (1996) explored the psychological experience of living with chronic pain in an attempt to explain the high prevalence of depression in this group. They proposed a diathesis-stress framework to conceptualise the development of depression in chronic pain patients. Diathesis refers to a person's characteristics (e.g. negative schemas) and stress refers to event(s) that the individual feels unable to cope with (e.g. physical impairment or disability). The diathesis-stress model asserts that for a disorder to develop there must be an interaction between diathesis and stress.

Although Banks and Kerns (1996) acknowledge that a number of general stressors not related to chronic pain could activate psychological diatheses for depression, they argue that the experience of chronic pain involves a distinctive assortment of difficulties, including the unpleasant sensory and distressing emotional aspects of pain, physical impairment and/or disability, and perceived invalidating reactions from family, friends and health care professionals. In terms of the research implications of this model, the authors suggest that further exploration of the

cognitive and behavioural diatheses significant in depression, as well as elucidation of the adequacy of general diatheses or the requirement of pain-specific diatheses would be helpful. The authors also state that further examination of the stressful aspects of chronic pain would be helpful in order to better understand the usefulness of this model in treating chronic pain conditions.

### ***1.6.3.2 The role of personality in the relationship between chronic pain and depression***

Although there is no evidence to suggest that chronic pain patients produce a single personality profile, the most often observed correlates of chronic pain and co-existing depressive symptoms are somatoform anxiety and conflict over the expression of anger (Beutler, Engle, Oro, Beutler & Daldrup, 1986). Covino, Dirks, Kinsman and Seidel (1982) claimed to find distinctive depressive patterns identified as characteristic of patients with chronic pain, although these patterns are most easily and consistently observed in studies of patients with a relatively consistent and homogenous pain syndrome. For example, Achterberg-Lawlis (1982) in reviewing attempts to define the personality characteristics of patients with rheumatoid arthritis, concluded that depressive symptoms, anger and family/interpersonal disturbances were among the most dominant characteristics. However, the cause and effect relationship between these variables and either pain or disease remains uncertain. Overall, researchers within the area of pain have been critical of the suggestion that there exists a 'pain-prone' personality and, overall, there is little convincing research evidence to indicate the role of personality as a useful construct in relation to pain (Roy, 1985).

Rather than focusing on specific, affective, stable constructs, Beutler et al. (1986) highlight the importance of looking at 'processes'; that is, the conditions which evoke pain (e.g. by accident or disease) and the pathways for expressing emotional conflict (e.g. emotional expression vs. emotional constraint). The relevance of these processes to the relationship between pain and depression will be considered in the following section.

### ***1.6.3.3 The role of process similarities in the relationship between chronic pain and depression***

Beutler et al. (1986) argue that the circumstances that evoke pain and the pathways available for expressing emotional conflict, affect an individual's ability to cope, and therefore play a part in the relationship between pain and depression. DeGood, Buckelew and Tait (1985) explored the role of cognitive and somatic coping strategies among 100 chronic pain outpatients and control subjects. They asked both groups to complete a cognitive-somatic anxiety questionnaire to examine group differences in participants' manner of self-reporting anxiety. The result showed that chronic pain patients were more likely to acknowledge fewer total signs of anxiety, and endorsed significantly more somatic items than cognitive indicators of anxiety. The authors concluded that patients with chronic pain may have a limited capacity to directly express intense emotions through means other than somatic channels.

A relationship between patterns of emotional constraint, disease proneness and prognosis has been suggested in several studies involving various diseases. Such studies provide convincing evidence of the importance of expressing emotion in order to maintain good health and improve ill-health. Hollaender and Florin (1983)

found that expressions of anger, joy and fear were all less frequent and intense in asthmatic children than in controls. Several studies have concluded that cancer patients are more likely than healthy individuals to constrict emotional displays of anger (Cox & MacKay, 1982). It seems that excessive emotional constraint has particular implications for cancer patients, as suggested by the presence of positive correlations between survival time and the intensity of expressed emotional response to the disease (Greer & Morris, 1981). For example, Levy, Herberman, Maluish, Sclien and Lippman (1985) discovered that prolonged levels of diminished emotional arousal (as evidenced by depression, apathy and listlessness) are associated with worsened biological status among breast cancer patients. Diamond (1982) demonstrated that patients with high blood pressure are characterised by 'over control' (i.e. having rigid control over their emotions), whereas those with coronary heart disease were characterised by impulsivity and poor control over their anger. Beutler et al. (1986) suggested that emotional overcontrol frequently characterises both patients with the pain of a chronic disease and patients with major depression.

The purpose of this section has been twofold: (1) to present empirical evidence to support the assertion that depression frequently accompanies chronic pain and vice versa, and; (2) to present some theories and associated research to explain why this might be the case. In sum, although there has been much interest in this area, the extent to which depression and chronic pain are associated remains a controversial issue which empirical studies have failed to resolve completely. However, in light of the evidence presented above, for the present study it is hypothesised that *a significant proportion of chronic facial pain patients will report clinically significant levels of depressed mood.*

## **1.7 Methodological limitations of chronic pain research**

As illustrated above, psychology research over the past fifty years has made significant contributions to theories about chronic pain and treatment of chronic pain conditions. However, many of the research studies undertaken in the area of chronic pain have been criticised for weak methodology, inconsistent findings and biased interpretation of data. Although more recently there has been an emphasis on methodological robustness, the difficulties associated with both past and present pain research should not be underestimated. The importance of an awareness of the methodological limitations of chronic pain research and the implications for data interpretation is crucial and, as such, a brief overview of the main concerns will be presented.

First, the absence of adequate control groups in many studies of chronic pain has been highlighted (Romano & Turner, 1985; Gupta, 1986; Kohler & Kosanic, 1992). The importance of control groups was illustrated by Anderson, Bradley, Young and McDaniel (1985) in a review of research on the 'arthritic personality'. It was revealed that those studies which lacked a control group consistently reported the expected personality traits in patients with rheumatoid arthritis, while studies with control groups were mixed.

Second, many authors have been criticised for applying findings from pain clinic samples to the general population of pain sufferers (Chapman, Sola & Bonica, 1979; Atkinson, Slater, Patterson, Grant & Garfin, 1991). The difficulties associated with this assumption is clear from studies which have compared pain patients treated in

general practice with those seeking treatment in a pain clinic, and found significant differences on psychological variables between the two groups (Chapman et al., 1979; Gamsa, 1990). Gamsa (1994) also points out that there is some indication of over-representation of pain patients from low socio-economic status, which may reflect a selection bias related to the clinic setting (Merskey, 1984).

Third, although correlational designs are commonly used in chronic pain research it is widely acknowledged that these do not permit direct causal conclusions to be drawn. Despite this, however, many authors have over interpreted results of pain studies by drawing casual conclusions from correlational data (Violon, 1980; Blumer & Heibronn, 1982). An example of this is Perry, Heller and Levine's (1991) study in which the authors concluded that low correlations on different measures of pain were indicators of 'functional' pain. As Slater, Klapow and Doctor (1992) indicate, this misapplication of correlation data could lead to inaccurate conclusions about distinctions between functional and organic pain which, in turn, could have negative consequences for the patient.

Finally, it has been pointed out that many psychological tests should be interpreted with caution, because somatic or situational items are more likely to measure reactions to pain and/or illness rather than psychopathology. The Minnesota Multiphasic Personality Inventory (MMPI) frequently shows elevated scores on the scales of Hypochondriasis, Depression and Hysteria in pain patients and consequently, pain has been attributed to premorbid neuroticism (Freeman, Calsyn & Louks, 1976). However, Wade et al. (1992) demonstrated that most pain patients had a normal personality structure and concluded that high scores typically found in

the MMPI did not reflect neuroticism, but somatic symptoms related to pain and illness. Concerns about assessment measures with a large somatic component have led some researchers to eliminate somatic items from the Beck Depression Inventory (BDI) (Zaphiropolous & Burry, 1974) Others have noted that overlapping symptoms in pain and depression may lead to inaccurate diagnosis when DSM-IV diagnostic criteria are used (Katon, Egan & Miller, 1985; Sullivan, Reesor, Mikail & Fisher, 1992).

As a final note, the available research literature relating to chronic pain and negative affect deals largely with chronic back pain. There is a distinct lack of research examining the experience of anger and depression in chronic facial pain patients, and it is this population that the current study will focus on.

## **1.8 Conclusions from the literature**

- Over the past few decades there has been increasing recognition of the role of affect in the development and maintenance of chronic pain conditions. The significance of affect has been incorporated within the definition of pain formulated by the International Association for the Study of Pain, in which pain is defined as a sensory and emotional experience.
- A relationship between chronic pain and depression has been observed in many research studies and evidence suggests that up to two-thirds of chronic pain patients suffer from a major depressive syndrome. However, there remains uncertainty with regards to the source, strength and nature of these two conditions.

- Despite anecdotal evidence suggesting that anger is a significant factor in the experience of chronic pain, there has been little empirical investigation into this relationship. The few studies that have been conducted are mainly limited to the study of chronic back pain.
- Initial studies have provided convincing evidence for the association between anger and pain. Significant positive associations have been revealed between anger and pain severity, emotional distress, depressed mood and perceived disability. Clinical anecdotes suggest that anger may also adversely affect outcome following multidisciplinary pain programmes.
- Some studies indicate that the relevance of anger to the chronic pain experience varies according to the target of an individual's anger. One study revealed that chronic pain patients were more likely to direct their angry feelings toward themselves and their health care providers.
- There is some evidence to suggest that anger toward oneself is an important contributor to the aversiveness of pain experience (in particular, to pain severity and depression).
- Few studies have examined the relationship between gender, chronic pain and anger. Those that have, revealed inconsistent findings. However, there is some evidence that male and female patients are comparable in their expression of anger, anger intensity and specific anger targets. From such findings, some researchers have suggested that the chronic pain experience may override the usual social norm of anger expression.

## 1.9 Hypotheses

In considering the evidence presented above, the following main hypotheses are presented for this study:

Hypothesis 1:

A significant proportion of chronic facial pain patients will report feeling some degree of anger at the time of evaluation.

Hypothesis 2:

Among those individuals reporting anger, the most common anger targets will be anger toward themselves and anger toward health care professionals.

Hypothesis 3:

High levels of overall anger will be associated with increased severity of pain.

Hypothesis 4:

High levels of overall anger will be associated with increased levels of depression.

Hypothesis 5:

High levels of overall anger will be associated with increased levels of perceived disability.

Hypothesis 6:

High levels of anger towards self will be associated with increased severity of pain.

Hypothesis 7:

High levels of anger towards self will be associated with increased levels of depression.

Hypothesis 8:

Pain intensity, depression and disability will independently add to the prediction of overall anger.

Hypothesis 9:

A significant proportion of chronic facial pain patients will report clinically significant levels of depressed mood.

No hypothesis was put forward regarding gender differences in terms of the frequency and intensity of anger toward any of the ten anger targets.

A qualitative methodology will be used to explore patients understandings of their anger.

## CHAPTER TWO

### RESEARCH METHODOLOGY

#### 2.1 Statement of intention

This research methodology chapter consists of three main sections. The first of these will describe the general details of the study; the study design, participant characteristics and procedural issues. The second section will be concerned with the quantitative measures used in the study; in particular, the psychometric properties of each measure and factors relating to administration. The third section will describe the qualitative section of the study; more specifically, it will provide a description of content analysis, the basic steps involved in conducting content analysis and a brief description of why this methodology is important in the present study.

#### SECTION 1

#### 2.2 Design

A cross-sectional design was employed. The main method of data collection was self-report questionnaires completed at one time interval. Also, as qualitative research is often recommended to complement quantitative data, short, semi-structured interviews were conducted with a sub-sample of participants (see sections 2 and 3 for further details).

#### 2.3 Setting

All data were collected from the Eastman Dental Hospital (part of the University College London Hospital NHS Trust). The Hospital, together with the Eastman

Dental Institute, provides specialised oral and dental care for patients, specialist postgraduate training for dentists and carries out a wide range of research in the prevention and treatment of oral and dental disease.

## **2.4 Participants**

Participants were recruited from facial pain clinics at the Eastman Dental Hospital. These patients were referred to the hospital by their dentist, General Practitioner or other health professional, for evaluation and treatment of their facial pain problem. In order to reduce the likelihood of participant's responses being influenced by contact/intervention within the hospital setting, only patients on their initial visit to the hospital were requested to take part in the study. Furthermore, only individuals between the ages of 18 and 65, with a history of chronic facial pain of at least 6 months duration were approached to take part in the research. Also excluded from the study were patients who were unable to read or write English well enough to complete the questionnaires, patients who were suffering from any other major medical, neurological or psychological disorders, and patients who were experiencing current alcohol or substance misuse problems.

### **2.4.1 Sample Size**

Based upon published studies of a similar nature, a sample size of 100 was agreed upon. It was anticipated that 20 of the participants would also take part in the semi-structured interview. The sample was drawn from first time attenders at 3 facial pain clinics run by 3 different clinicians. An average of 6 new facial pain patients are seen in each of these clinics, and as waiting times are fairly long, the attendance rate is usually high. Based upon this information a prediction was made that data

collection would be complete in a period of ten weeks. However, the potential for accessing participants was severely limited by a number of unforeseen events. First, a fortnight into data collection, a clinician running one of the pain clinics broke her leg and was placed on sick leave for a period of 4 months (the entire period available for data collection). Second, mid-way through data collection, a family member of the second clinician became seriously ill and consequently, a number of her pain clinics were also cancelled. In sum, for several weeks, only 1 pain clinic was running (rather than the anticipated 3). As a consequence, data collection extended over a longer period of time than anticipated and the final sample size obtained was less than was initially planned.

#### **2.4.2 Response rate**

A total of 61 potential participants from 2 clinics, were approached to take part in the study. Six of these failed to fulfil criteria for the study for the following reasons: one person had a serious physical health problem; two people had insufficient command of English to complete the questionnaires, and three people no longer had any pain. Of the remaining 55 patients approached, 4 refused to take part. This is a response rate of 93%. Two of these 4 people failed to give a reason why they did not wish to take part in the study, the other two stated that they were in too much pain to complete the questionnaires.

### **2.5 Procedure**

#### **2.5.1 Ethics**

A detailed research protocol and ethics application form was submitted to the Eastman Dental Institute and Hospital Joint Research and Ethics Committee. Ethical

approval was granted by this committee in December 2001, prior to commencing data collection (see Appendix 1). Although a full account of the recruitment procedure will be detailed below, the aspects of recruitment which had potential ethical implications will be discussed first.

Prior to taking part in the study each participant was given a comprehensive information sheet, detailing the nature of the study and their involvement in it should they consent to take part (see Appendix 2). Participants were then provided with an opportunity to ask any questions that they had about the study before deciding whether or not they wished to take part. Those participants who were willing to take part were requested to sign a consent form before being handed the questionnaire pack (see Appendix 3).

It was emphasised to the participants that the questionnaire responses would be viewed only by the primary and secondary researchers, and that they were not required to write their names on the questionnaires. All consent forms and questionnaires were numbered prior to being handed to the patient to complete. It was also clearly stated that the decision whether or not to take part in the study would in no way influence the participants future treatment at the hospital.

It was considered that taking part in the study would be associated with a minimal risk of distress. However, arrangements were made such that if a participant were to exhibit signs of distress, the primary researcher would take that individual to a clinic room for a de-briefing session. Following this, if necessary, the primary researcher

would either organise for the individual to be seen by the hospital's clinical psychologist or suggest that s/he make contact with their general practitioner.

### **2.5.2 Recruitment procedure**

Between the dates of December 2001 and April 2002 the primary researcher visited the Eastman Dental Hospital once weekly to attend three facial pain clinics. Prior to the start of each clinic, the hospital database was used to identify all new pain patients booked in on that day and based upon the inclusion/exclusion criteria, a list of potential participants was drawn up. When the patients arrived at the oral surgery reception they were approached by the primary researcher and the purpose of the study and their potential involvement in it was outlined. At this point, if the patient was willing to consider taking part, they were given the information sheet, providing further details of the nature of the study. Patients were then provided with an opportunity to ask any questions that they had about the study. Those patients who agreed to take part in the study after reading the information sheet were asked to sign a consent form before commencing.

A further pain clinic was held on a day on which the primary researcher was unable to attend. Due to the difficulties associated with data collection as described in section 2.4.1, the receptionists at the Oral Surgery department kindly volunteered to hand out the information sheet and questionnaire pack to new patients on this day. The secondary researcher was available to provide more information about the study and answer any questions should that be necessary. Over a five-week period a total of 16 questionnaire packs were handed out and 2 were returned (a response rate of 13%). As it was clear that this method of recruitment was not effective, it was

abandoned.

### **2.5.3 Data collection procedure**

All participants were given a questionnaire pack containing (i) a demographics questionnaire, (ii) a pain questionnaire (iii) the Pain Disability Index (Pollard, 1984), (iv) The Oral Health Impact Profile (Slade & Spence, 1994), (v) the Targets of Anger Scale (adapted from Fernandez et al., 1996), and (vi) the Beck Depression Inventory (BDI) (Beck et al., 1961) (see measures section for a detailed account). The questionnaire pack took between 15 to 25 minutes to complete.

A sub-sample of patients scoring above a predetermined cut-off on any of the 10 targets on the Targets of Anger Scale were requested to take part in a brief semi-structured interview to explore these ratings further (see Section 3 for further details).

## **SECTION 2**

### **2.6 Quantitative Measures**

This section describes the six questionnaires employed in this study. The psychometric properties of each will be described in turn, with particular emphasis on their reliability and validity. Factors relating to the administration of each measure will also be addressed.

#### **2.6.1 Demographics questionnaire**

The demographics questionnaire was developed specifically for the purpose of this study. It includes items relating to participants age, ethnic origin, living

circumstances, employment status, pain description, previous medical/psychological treatment, medication and other health problems. This measure takes approximately 5 minutes to complete. (see Appendix 4).

### **2.6.2 Pain Questionnaire**

There are numerous questionnaires designed to measure pain, and these tend to fall into either numerical, spatial or verbal pain ratings. Despite the widespread use of pain ratings, little research has been conducted on the integration of different pain measures and differentiations between statistical and clinical significance in pain. Although some researchers have attempted to validate pain ratings (Carlsson, 1983), Williams (1995) points out that it is not really possible to validate an internal, subjective sensation.

Research examining the effects of mood on pain has accentuated the importance of 'anchoring' average pain by estimating current pain first. Jensen and McFarland (1993) reported that for an average rating of pain, twelve ratings over a period of four days provided adequate reliability. In the present study both current measures of pain and average pain will be taken.

Jensen, Karoly and Braver (1986) examined the three different modes of pain measurement (numerical, spatial and verbal) for simplicity of scoring, ease of understanding, sensitivity (both in terms of statistical power and in number of response categories) and their relationship with other pain indices. They reported the Numerical Rating Scale (0-100) to be the most straightforward to administer and least vulnerable to scoring error. It compared particularly well to the Visual

Analogue Scale (VAS), which some older subjects had difficulty completing. Jensen et al. (1986) also found that whilst verbal scales had the lowest error rate, these tended to have less sensitivity to change due to there being fewer response options. Based upon these findings, a numerical rating scale was chosen for the present study (see Appendix 5).

One final point is that (like all measurement) pain ratings are subject to demand effects. Although social desirability is rarely considered in relation to pain ratings, it is worthwhile acknowledging the possibility of patients presenting themselves as either stoical (thus providing lower ratings) or making attempts to emphasise their need for treatment (thus providing higher pain ratings). This might be particularly pertinent in the current study where participants were required to complete the pain rating scale prior to being seen for the first time by a pain clinician in a specialist hospital.

### **2.6.3 The Pain Disability Index (PDI) (Pollard, 1984)**

The PDI is a self-report inventory, which asks patients to rate on a Likert scale from 0-10 the degree to which pain interferes with functioning in 7 areas of daily living. These areas are: (i) Family/home responsibilities, (ii) Recreation, (iii) Social activity, (iv) Occupation, (v) Sexual behaviour, (vi) Self-care and (vii) Life-support activity. Each item score can range from 0 ( no interference) to 10 (total interference). Therefore, the PDI can range from 0 to 70. The PDI takes between 5 and 10 minutes to complete. (see Appendix 6).

Research has provided support for the PDI as a valid and reliable measure of pain-related disability. Tait, Chibnall and Krause (1990) reviewed two studies of chronic pain patients (n=444) relevant to the psychometric properties of the PDI. The first of these was conducted by Richards, Nepomuceno, Riles and Suer (1982), who compared pre-admission PDI scores with time of admission scores (approximately a 2-month period). The Pearson product-moment correlation for the PDI scores was  $r=0.44$  ( $P<0.001$ ), indicating good test-retest reliability.

Pollard (1984) carried out multiple regression analysis, which lends support to the construct validity of the PDI. PDI scores were found to be predicted by 9 variables: (i) Hours per day spent in bed, (ii) Frequency and intensity of psychosomatic symptoms, (iii) Times per day activities stopped due to pain, (iv) Work status, (v) Pain duration, (vi) Usual levels of pain, (vii) Quality of life, (viii) Pain extent, and (ix) Education level. Thus, disability was found to be associated with pain-related interference for activities (such as bed rest), the symptom complex (such as extent of pain and pain severity), employment, education and satisfaction with life activities. Tait et al. (1990) point out that in this study disability correlated negatively with pain duration (which might indicate that people accommodate to persisting pain).

Bush and Harkins (1995) used the PDI in a study of 272 patients reporting orofacial pain. The results showed that the factor structure for orofacial pain patients differed little from low back pain patients. The results also showed that pain diagnostic sub-groups tended to share common pain-related limitations of daily living.

Although other measures of functional limitation exist (The Sickness Impact Profile; Bergner, Bobbitt, Carter & Gilson; the West Haven-Yale Multidimensional Pain Inventory, 1981; Kerns, Turk & Rudy, 1985) these have tended to be lengthy and therefore, not practical within the present study, where participants are required to complete the questionnaire battery in a relatively short period of time. On balance, the PDI was used because research generally supports its reliability and validity as a brief general measure of pain-related disability, and because it is easily administered as part of an assessment battery (completion time is approximately 5 minutes).

#### **2.6.4 The Oral Health Impact Profile-14 (Slade & Spencer, 1994)**

The Oral Health Impact Profile (OHIP) is a self-report inventory devised to assess the functional impact of oral disorders. The original version of the scale included 49 statements describing the consequences of oral disorders. Finbarr and McMillan (1999) highlight how time-consuming the OHIP-49 is to administer (taking approximately 20 minutes to complete) and describe a 14-item version of the OHIP (Slade, 1997). A recent study comparing the OHIP-49 with the OHIP-14 demonstrate the validity of these two questionnaires to be similar and the OHIP-14 more practical to use in a clinical setting (taking approximately 5 minutes to complete) (Finbarr & McMillan, 1999). It was this version that was used for the present study (see Appendix 7).

Reliability of the OHIP was evaluated in study by Slade and Spencer (1994). They examined a cohort of 122 pain patients aged 60 year or over. Values of Cronbach's alpha reliability coefficient (Cronbach, 1951) for six of the sub-scales ranged from 0.70 to 0.83, indicating good reliability of those subscales. The handicap subscale

was revealed to have only moderate reliability ( $\alpha = 0.37$ ). Stability in the pattern of responses was assessed in a test re-test of 46 subjects from the senior cohort who participated both in the 20-month and further 23-month follow-up. The intraclass correlation coefficient ranged from 0.42 to 0.77 in six subscales, demonstrating good or excellent reliability. The exception to this was the social disability subscale where the coefficient was 0.08.

Construct validity was sought by comparison of the pattern of OHIP responses at 20-month follow-up with responses to a different set of social impact items (Cushing, Sheiham & Maizels, 1986) obtained at baseline. At baseline it was found that those patients who had reported a need to visit a dentist, tended to have higher social impact scores on Cushing et al.'s (1986) scale than those who did not. This is not a particularly surprising finding, since the experience of social impact often precedes a visit to the dentist. At the 20-month follow-up, the questionnaire responses demonstrated that those people who said they required a visit to the dentist were approximately twice as high in OHIP subscale scores than those who did not. From their findings Cushing et al. (1986) suggested that the OHIP was able to identify a previously observed association between social impact and perceived need to visit a dentist, and also that this association persisted across a broader range of subscales.

In sum, The Oral Health Impact Scale was chosen for a number of reasons. First, it is a specific measure of disability due to facial pain (capturing a variety of impacts, ranging from oral functioning effects through to pain and personal affect and social interaction). Second, empirical research has demonstrated the measure to perform

well in the critical areas of reliability and validity. Third, the OHIP-14 is easily understandable and takes little more than 5 minutes to complete.

### **2.6.5 Targets of Anger Scale (TAS) (abbreviated version) (Fernandez, Moon, Urrutia, Saliaas & Johnson, 1996)**

The TAS is a self-report measure originally used by Fernandez et al. (1996) to assess the presence of current levels of anger, directed toward ten specific targets identified as important among chronic pain patients. Okifuji, Turk and Curran (1999) modified this measure to nine specific targets (the tenth item assessing the level of overall anger). The nine targets are (i) Whole world, (ii) Self, (iii) God or destiny, (iv) Significant other, (v) Employer, (vi) Insurance company, (vii) Legal system, (viii) Health care providers, (ix) Person who caused the pain-precipitating injury (where relevant).

Respondents are requested to indicate their degree of anger toward each target using a Likert-type scale of 0 to 10 (where 0 indicates *not at all angry* and 10 indicates *extremely angry*). Patients overall level of anger is rated on the same scale. The TAS takes approximately 5 minutes to complete. (see Appendix 8).

### **2.6.6 The Beck Depression Inventory (BDI) (Beck et al., 1961)**

Over the years the BDI has become one of the most widely used instruments for assessing the intensity of depression in psychiatric populations, normal populations and pain populations (Piotrowski, Sherry & Keller, 1985; Steer, Beck & Garrison, 1986). The BDI was constructed from clinical observations about the symptoms and attitudes of depressed and nondepressed psychiatric patients (Beck, Ward,

Mendelson, Mock & Erbaugh, 1961). These observations were consolidated into 21 symptoms and attitudes, the intensity of which could be rated from 0 to 3. The 21 symptoms and attitudes were as follows:

(i) Mood, (ii) Pessimism, (iii) Sense of failure, (iv) Lack of satisfaction, (v) Guilt feelings, (vi) Sense of punishment, (vii) Self-dislike, (viii) Self-accusation, (ix) Suicidal wishes, (x) Crying, (xi) Irritability, (xii) Social withdrawal, (xiii) Indecisiveness, (xiv) Distortion of body image, (xv) Work inhibition, (xvi) Sleep disturbance, (xvii) Fatigability, (xviii) Loss of appetite, (xix) Weight loss, (xx) Somatic preoccupation, and (xxi) Loss of libido. (see Appendix 9). The BDI is not a diagnostic instrument.

Although the BDI was initially designed to be administered by trained interviewers, it is commonly self-administered. The questionnaire generally takes between 5-10 minutes to complete. It is scored by summing the ratings given to each of the 21 items. What follows are guidelines for BDI cut-off scores with patients diagnosed as having affective disorder (as suggested by The Centre for Cognitive Therapy, Philadelphia, USA):

<10 none or minimal depression;  
10-18 mild to moderate depression;  
19-29 moderate to severe depression;  
30-63 severe depression.

A review of the psychometric properties of BDI (Beck, Steer & Garbin, 1988) indicates that the BDI has high internal consistency in both psychiatric and

nonpsychiatric samples. The mean internal consistency estimate, coefficient alpha was reported as 0.87.

Beck et al. (1988) reviewed 35 studies reporting correlations between the BDI and a variety of concurrent measures of depression, and concluded that concurrent validity of the BDI is high. The BDI is both related to clinical assessments of depression ( $>0.60$ ) and also demonstrates particularly strong positive relationships with four well-researched instruments measuring depression (the Hamilton Rating Scale for Depression; the Zung; the Minnesota Multidimensional Personality Inventory-Depression scale and the Multiple Affect Adjective Check List-Depression Scale).

The construct validity is also strong in the BDI. A number of hypothesised relationships between physiological, behavioural and attitudinal variables indicative of depression have been detected. For example, suicidal behaviour has displayed positive relationships with depression as measured by the BDI (Emery, Steer & Beck, 1981) as have depressive thoughts (Gotlib, 1984); loneliness (Gould, 1982) and stress (Monroe, Imhoff, Wise & Harris, 1983). BDI scores have consistently been shown to be significantly related to self-reported anxiety (Baker & Jessup, 1980; Stenback, Rimon & Turunan, 1967).

Although in general the BDI has been demonstrated to have strong validity and reliability across a variety of populations, difficulties with its use in pain populations have been highlighted; in particular the risk of it producing an exaggerated impression of depression. Williams (1993) draws attention to the fact that a number of the items on the BDI have a somatic content (i.e. fatigue, health concerns). She

points out that these difficulties are also frequently associated with chronic pain conditions. In her 1993 study of 240 chronic pain patients, Williams found that almost 72% of patients scored at or above the threshold of 13 recommended by Turner and Romano (1984) for identifying depression in pain patients. However, she noted the high rate of endorsement for problems such as work, fatigue, sleep, health concerns and dissatisfaction with daily life, which are related to chronic pain as much as they are to depression. In summary, despite the difficulties associated with the BDI, it remains one of the most well-used and well-respected measures of depression in psychological research. However, as recent research evidence has suggested (Williams, 1993) when the BDI is used in chronic pain research, the total score should be interpreted with caution.

## **2.7 Statistical Analysis**

Descriptive statistics, Pearson's Product Moment Correlational Analyses and multiple regression analyses were undertaken using SPSS for windows 10.00.

## **SECTION 3**

### **2.8 Qualitative Methodology**

#### **2.8.1 Recruitment procedure**

As mentioned in section 1, semi-structured interviews were conducted with a sub-sample of participants with high scores ( $\geq 4$ ) on any of the ten anger targets. This cut-off point was selected because 4 was the mean anger score in the Okifuji et al. (1999) study. When the completed questionnaire packs were returned to the primary researcher, those participants with high anger scores were identified and approached.

It was explained that the interview would be conducted in a separate clinic room and would take between 10 and 15 minutes. On the participant's agreement, they were guided to the clinic room where a further brief explanation about the nature of the study was given. It was also re-iterated that all responses would remain confidential, would be seen only by the primary and secondary researchers, and would in no way influence their treatment at the hospital. Fifteen out of the 16 participants that were approached agreed to be interviewed.

### **2.8.2 Semi-structured Interview**

The interview consisted of six questions, relating to:

- His or her pre-morbid experience of anger (in particular, whether or not he/she would have considered themselves to have been an angry person prior to the onset of their pain problem).
- His or her reasons for feeling angry in relation to his/her pain.
- Length of time he or she had experienced feelings of anger.
- How feeling angry had affected him/her.
- How he/she managed his/her anger.
- What would help him/her to feel less angry?

(see Appendix 10 for full version of questions).

On completion of the interview, participants were asked if they had any further questions and were thanked for their participation.

During the interview, participants responses were recorded verbatim and these responses were analysed using content analysis methodology (Krippendorff, 1980).

The main reason for using content analysis in this present study was to qualify individual experiences of anger. The use of content analysis will be described in greater detail in the following section.

### **2.8.3 Content analysis**

Content analysis is a qualitative research method that systematically evaluates the content of recorded communications. In simple terms, it involves counting the occurrence of specific words, themes, phrases and content categories in a piece of text. The more frequently a category appears, the more important or relevant it is deemed to be. Content analysis has, to date, been used most widely in the area of consumer research. However, in line with many other qualitative methodologies, content analysis has become increasingly popular in psychological research. For example, a content analysis using a 45 category coding manual was undertaken by Abraham, Krahe, Dominic and Fritsche (2002) to assess the extent to which the content of safer sex promotion leaflets corresponded to the cognitive and behavioural correlates of condom use identified by theory-based research. What makes this research method particularly useful, is that it allows communications to be analysed at a number of levels (e.g. word, theme, image) and thus produces a host of research opportunities. In an empirical review of 128 studies using content-analysis, which placed particular emphasis on reliability issues, Kolbe and Burnett (1991) concluded that content analysis is *“an important and (re)-emerging method for facilitating many other types of analyses”*.

What follows is a description of the eight basic steps involved when undertaking content analysis:

1. *Defining the recording unit.* This involves defining the basic unit of text to be classified. Researchers have a choice of classifying words, word sense, paragraphs, whole sentences, themes or the entire text. In the current study the selected recording units are words.
2. *Defining the categories.* This involves two decisions. First, it must be decided whether or not the categories are to be mutually exclusive. Second, it must be decided how narrow or broad the categories are going to be.
3. *Test coding on sample of text.* In order to clarify the category definitions, a small sample of text should be coded. This can highlight flaws in the classification scheme and appropriate revisions can then be made.
4. *Assess reliability.* Reliability of the coding procedure should be gauged prior to resolving disagreements between coders.
5. *Revise the coding rule.* If reliability is revealed to be poor, the coding rules should be revised.
6. *Return to step 3.* Until adequate reliability is achieved, this cycle will continue.
7. *Code the text.* Coding rules are now applied to the entire text.
8. *Assess achieved reliability or accuracy.* Once the text is classified the reliability of coders should be assessed.

For this section of the study no predetermined hypotheses were made about why facial pain patients were feeling angry or what strategies they used to deal with their angry feelings. Content analysis allows a generalisable profile of responses to be built up, examined and discussed. The use of content analysis will be described in greater detail in section 3.4 of the results chapter which follows. The results chapter

will also describe the results of the quantitative statistical analyses carried out in order to examine the hypotheses presented in section 1.9 of the introductory chapter.

## RESULTS

**3.1 Statement of intention**

This chapter details the statistical analyses carried out to examine the hypotheses presented in section 1.9 of the introductory chapter. The results of each of these hypotheses will be addressed in turn. This chapter consists of three main sections. Section 1 describes the demographics of the sample and section 2 provides a description of the quantitative data analysis, which is divided into five sub-sections; (i) a description of the data preparation, (ii) the descriptive statistics, (iii) the results of the correlational analysis, and (iv) the results of the multiple regression analyses. Finally, section 3 describes the results of the qualitative analysis.

**SECTION 1****3.2 Demographics**

Of the participants (N=51), the majority (N=44; 86%) were female. The age range was 21 to 65 years with a mean age of 41.88 (SD=13.41). In terms of ethnic origin, 42 (82.4%) participants described their ethnic origin as White, 5 (9.8%) Asian, 2 (3.9%) Afro-Caribbean and 1 (2%) Greek Cypriot. One participant (2%) failed to complete this item.

Of the sample, 34 (65%) lived with a partner and/or children, 5 (10%) lived with friends, 11 (22%) lived alone and 1 (2%) lived with parents. In terms of employment, 20 (39.2%) were in full-time employment, 10 (19.6%) were in part-

time employment, 5 (9.8) were housewives, 2 (3.9%) were students, 8 (15.7%) were retired, 1 (2%) were registered sick/disabled and the remaining 5 (9.8%) were unemployed.

The length of time pain had been present ranged between 4 months and 25 years, with a mean of 43.75 months (SD=59.46). Of the 51 participants 18 (35%) reported experiencing continuous pain and 32 (63%) episodic pain. One (2%) participant failed to complete this question. Almost half of the sample (49%) could relate the onset of their pain to a specific experience or event. The sample's relevant pain history is presented below in Table 1.

Table 1. Participants' relevant pain history

<b>No. Of Drs seen prior to hospital referral</b>	<b>Number/percentage of participants</b>
0-1	24 (47.1%)
2-4	23 (44.8%)
5-6	2 (4%)
Failed to complete item	2 (4%)
<b>No. Of operations for pain</b>	
0	42 (82.4%)
1	4 (7.8%)
2	4 (7.8%)
Failed to complete item	1 (2%)
<b>Previous referral to psychologist, psychiatrist or counsellor for pain</b>	11 (21.6%)
<b>Taking medication for pain problem</b>	20 (39.2%)

## SECTION 2

### 3.3 Quantitative data analysis

#### 3.3.1 Data preparation

In order to carry out parametric analysis, data are required to be (i) continuous; (ii) normally distributed; and (iii) have homogeneity of variance. This sub-section describes the methods utilised in order to achieve that aim. The distribution profiles for each variable will be presented, along with calculations for skewness and kurtosis. The problem of missing data and how this was managed in the data analysis will also be addressed in this sub-section.

##### 3.3.1.1 *Examination of the distribution of the continuous data variables*

For all continuous variables the distribution of scores around the mean was analysed. Table 2 shows the results of this analysis, alongside the number of participants included in the analysis and means and standard deviations for the main variables. Based upon Tabachnick & Fidell's (1996) recommendations, an acceptable level of skewness and kurtosis was set at  $<2.56$ .

Table 2. Descriptive statistics and results of the analysis of normality for each of the continuous variables.

<b>Variable</b>	<b>N</b>	<b>Mean and Standard deviation</b>	<b>Skewness z-score</b>	<b>Kurtosis z-score</b>
<b>Pain intensity rating (now)</b>	50	27.76 (SD= 27.61)	3.06	0.44
<b>Pain intensity rating (average week)</b>	49	37.20 (SD= 29.35)	1.87	-0.86
<b>Beck Depression Inventory (BDI)</b>	49	10.88 (SD= 9.74)	4.37	2.98
<b>Pain Disability Index (PDI)</b>	50	17.96 (SD= 16.45)	2.64	0.17
<b>Oral Health Impact Scale (OHIP)</b>	48	22.86 (SD= 11.08)	2.84	1.21

As shown in Table 2, with the exception of the pain intensity rating (average week), all the continuous variables had unacceptable levels of skewness or kurtosis for the planned parametric statistics. In order to correct the distribution in these variables, logarithms (log10) were carried out. The results of these transformations are presented in Table 3.

Table 3. Results of the normality analysis and z-score changes as a result of transformations for the unacceptably skewed continuous variables.

<b>Variable</b>	<b>Mean score and standard deviation</b>	<b>z-score Skewness</b>	<b>Skewness transformed</b>	<b>z-score Kurtosis</b>	<b>Kurtosis transformed</b>
<b>Pain intensity rating (now)</b>	1.39 (SD=0.40)	3.06	-1.29	0.44	0.78
<b>Beck Depression Inventory</b>	0.91 (SD=0.39)	4.37	-1.25	2.98	-8.08
<b>Pain Disability Index</b>	1.13 (SD=0.47)	2.64	-1.49	-0.17	0.55
<b>Oral Health Impact Scale</b>	1.31 (SD=0.22)	2.84	-1.36	1.21	1.26

As shown in Table 3, undertaking transformation analyses on the identified variables altered the scores so that they fell within an acceptable level of skewness and kurtosis. Therefore, it was possible to proceed with the parametric statistical analyses.

### **3.3.1.2 Missing data**

Questionnaire data were missing for some participants, although the vast majority of these were missing items rather than entire questionnaires. As the number of missing items was less than 5% of the total items, it was appropriate to pro-rate these items based upon the mean of the subscale. From patients written comments, the main reason for failing to complete the questionnaires were that some questionnaire items were open to interpretation. For example, on the OHIP one participant stated that they were unsure whether the '*had to interrupt meals*' item related to interrupting meals due to facial pain *and* other reasons (such as being too busy), or whether it applied to interrupting meals due to facial pain only. Another participant was unclear about the meaning of the '*found your diet unsatisfactory*' item and so failed to complete it. Other participants stated that certain items (such as the sexual behaviour category of the PDI) were not relevant to them and so failed to complete the item. One participant failed to complete both the BDI and the PDI. The reasons for this are not known.

### **3.3.1.3 Outliers**

As part of the data screening process a number of outliers were identified. However, z-scores revealed that none of these outlying scores deviated by more than three standard deviations from the mean, therefore, they were not removed from the data set.

## **3.3.2 Descriptive statistics**

The next section describes the results of the descriptive statistics conducted on the main variables.

Table 4. Mean scores and standard deviations for each of the main variables

Measure	N	Mean and standard deviation
<b>Pain intensity (present)</b>	50	27.76 (SD= 27.61)
<b>Pain intensity (average last week)</b>	49	37.20 (SD= 29.35)
<b>Pain distress (present)</b>	48	27.60 (SD= 28.28)
<b>Pain distress (average last week)</b>	48	37.51 (SD= 31.42)
<b>Pain disruption (average last week)</b>	50	26.10 (SD= 28.97)
<b>Beck Depression Inventory</b>	50	10.88 (SD= 9.74)
<b>Pain Disability Index</b>	50	17.96 (SD= 16.45)
<b>Oral Health Impact Scale</b>	49	22.86 (SD= 11.08)

### 3.3.2.1 Pain Scales

All five scales on the pain questionnaire ranged from 0 to 100. As shown in Table 4, the mean present pain intensity score was lower than pain intensity (on average last week) score. Present pain distress scores were also lower than pain distress (on average last week) scores. These findings are summarised in Table 4. As no specific hypotheses regarding pain distress and disruption were made in the present study, only pain intensity scores were used in the statistical analyses. However, it is interesting to note that pain distress scores were equal to, or higher than pain intensity and disruption scores.

### 3.3.2.2 Beck Depression Inventory (BDI)

*A high proportion of chronic facial pain patients will report clinically significant levels of depressed mood (Hypothesis 9)*

In order to investigate this hypothesis, The Beck Depression Inventory (BDI) was used to assess the intensity of depression. Participants were asked to provide a rating from 0 to 3 for 21 symptoms and attitudes related to depression. Of the sample, 50 participants completed the BDI. The mean BDI score of 10.88 (SD=9.74) falls in the mild depression range (using psychiatric norms) (Beck et al., 1988) (see Table 4). The standard deviation indicates that the spread of scores covered the non-clinical to the severe range for depression. The results of the BDI show that 57% of participants scored within the 'none or minimal' range of depression, 26% within the 'mild to moderate' range, 8% within the 'moderate to severe' range and a further 8% scored within the severe depression range. 32% of patients scored at or above the threshold of 13 for at least mild depression (the criteria recommended by Turner and Romano (1984) for identifying depression in chronic pain patients).

### **3.3.2.3 Pain Disability Index (PDI)**

The Pain Disability Index requires that participants rate on a 10-point Likert scale the degree to which pain interferes with functioning in 7 areas of daily living. The mean PDI score for this sample is close to the mean score of 16.3, reported in a study of 805 chronic pain patients (Hawk, Long, Boulanger, Morschauer & Fuhr, 2000). Saper, Lake, Stewart and Tepper (2000) administered the PDI with a sample of 52 headache patients and failed to report mean scores, but reported a median PDI score of 26.

### **3.3.2.4 Oral Health Impact Scale (OHIP)**

Forty-nine participants completed the Oral Health Impact Profile (OHIP), which measures the social impact of oral disorders over the past month. Participants were

requested to record how often they experienced a range of different problems related to oral health by ticking boxes ranging from 'never' (gaining a score of 0) to 'very often' (gaining a score of 4). The mean OHIP score in this sample is slightly higher than that found in Madland, Feinmann and Newman's (2000) study of 41 chronic facial pain patients, which reveals a mean score of 19.00 (SD=10). This is despite the fact that in their sample, mean pain duration was 53 months; 10 months more than in the current sample.

#### **3.3.2.5 Targets of Anger Scale (TAS)**

*A significant proportion of chronic facial pain patients will report feeling some degree of anger at the time of evaluation (Hypothesis 1)*

*Among those individuals reporting anger, the most common anger targets will be anger toward themselves and anger toward health care professionals (Hypothesis 2)*

In order to examine these hypotheses, Target of Anger Scale (TAS) scores were collected for all 51 participants. The frequency distribution indicates that approximately 92% of the sample were experiencing some degree of anger at the time of evaluation. This percentage is greater than that found in the Okifuji et al. (1999) study (69%). The mean number of anger targets identified and the mean overall anger score in the current sample are similar to those reported in the Okifuji et al. (1999) study (see Table 5). In the current study the highest mean anger scores were observed in relation to self and partner. Although the mean anger score toward self was relatively higher in Okifuji et al.'s (1999) study, their mean anger rating

toward significant others was reported to be lower than in the current study. Table 5 provides a summary of these results.

Table 5. Percentage of participants selecting each of the anger targets, mean anger scores and standard deviations for the current study and the Okifuji et al. (1999) study.

Anger Target	% of Ss specifying target	Mean score (current study)	Mean scores (Okifuji et al. Study, 1999)
The whole world	35	1.59 (SD= 2.71)	1.97 SD not available
Myself	75	3.65 (SD=3.17)	4.46 (SD=3.66)
God/destiny	20	0.75 (SD=1.81)	0.72 SD not available
Partner/friend/family	73	3.47 (SD= 3.25)	2.06 SD not available
My employer	45	2.25 (SD=3.33)	2.53 SD not available
Insurance company	14	0.59 (SD=1.64)	2.58 SD not available
The legal system	24	1.25 (SD=2.82)	1.74 SD not available
Health-care providers	49	2.45 (SD=3.27)	3.56 (SD=3.78)
Person who caused the injury	26	1.63 (SD=3.29)	4.53 (SD=4.36)
Overall level of anger	80	3.04 (SD= 2.87)	3.76 (SD=3.49)

The results described above support hypothesis 1 of this present study, that a significant proportion of chronic facial pain patients will report feeling some degree of anger at the time of evaluation. The results partially support hypothesis 2, that among those individuals reporting anger, the most common anger targets will be anger toward themselves and anger toward health care professionals. Anger toward a significant other was an unanticipated finding.

### **3.3.2.6 *Summary of descriptive statistics***

The findings of the descriptive statistics reveal that approximately one third of the chronic facial pain sample had at least mild depression. Mean pain intensity over average week scores were found to be higher than mean current pain intensity scores, and this was also the case for mean pain distress scores. Interestingly, pain distress scores were the same as, or higher than pain intensity scores. The descriptive statistics also revealed that a very high proportion of the sample reported feelings of anger and that the anger targets that were most frequently reported were anger towards self and significant other.

### **3.3.3 Correlational analyses**

As described in the introductory chapter, theoretical and empirical accounts reveal a number of significant positive associations between anger, chronic pain, depressed mood and disability. From such accounts, 5 hypotheses were generated predicting relationships between the variables of anger, depression and disability and chronic pain. Pearson's Product Moment Correlation is a widely used means of ascertaining significant associations between two variables with parametric properties and this test was used to analyse these five predicted relationships. Tables 6 below show the results of the correlational analyses relating to overall anger, the target 'anger towards myself' and the target 'anger toward significant other'. What then follows are each of the 5 hypotheses, and a description of the results of the corresponding correlational analyses.

Table 6. Pearson's Product Moment Correlations between overall anger and pain intensity, depression and disability

Variable	Overall anger	Anger toward self	Anger toward significant other
<b>Overall anger</b>	1.000 p=. N=51	0.554** p=0.00 N=51	0.374* 0.007 N=51
<b>Pain intensity (present)</b>	0.344* p=.030 N=40	0.209 p=.195 N=40	0.201 0.161 N=50
<b>Pain intensity (past week)</b>	0.717** p=.000 N=49	0.475** p=.001 N=49	0.213 0.143 N=49
<b>Depression</b>	0.456** p=.001 N=47	.467** p=.001 N=47	0.327* 0.021 N=50
<b>General disability</b>	0.261 p=.087 N=44	0.485** p=0.000 N=51	0.313* 0.027 N=50
<b>Oral disability</b>	0.476** p=.000 N=51	0.592** p=0.000 N=51	0.515** 0.000 N=51
<b>Anger toward self</b>	0.554** p=0.00 N=51	1.000 p=. N=51	0.524** 0.000 N=51
<b>Anger toward significant other</b>	0.374* 0.007 N=51	0.524** 0.000 N=51	1.000 p=. N=51

\*significant at 0.05 level, \*\*significant at the 0.01 level (1-tailed).

### 3.3.3.1 Results of correlational analyses pertaining to overall anger

*High levels of overall anger intensity will be associated with increased severity of pain (Hypothesis 3)*

Based upon theoretical conceptualisations of anger and chronic pain and the limited empirical evidence, it was predicted that those participants with high scores of anger would also have high pain intensity scores. As shown in Table 6, the correlational

analysis supports this hypothesis by revealing that pain intensity (both present and average over past week) was significantly associated with overall anger.

*High levels of overall anger intensity will be associated with increased levels of depression (Hypothesis 4)*

Based on a review of the psychological research in this area, it was hypothesised that ‘those participants who experienced high levels of anger would also experience high levels of depression. In order to test this hypothesis correlational analysis was conducted between anger and depression. As shown in Table 6, anger and depression were significantly correlated, thus supporting this hypothesis.

*High levels of overall anger will be associated with increased levels of perceived disability (Hypothesis 5)*

It was hypothesised that those participants with high levels of anger would experience greater levels of general and facial pain-specific disability. The correlational analysis supports this predicted relationship (see Table 6), with facial pain-related disability the more strongly related to anger.

### **3.3.3.2 Results of correlational analyses pertaining to anger toward oneself**

*High levels of anger towards oneself will be associated with increased severity of pain (Hypothesis 6)*

Based upon Okifuji et al’s (1999) study it was predicted that those participants who reported feeling angry toward themselves would also report high levels of pain intensity. As shown in Table 6, the correlational analyses indicated that anger towards oneself was significantly associated with average pain intensity over the past

week, but not with present pain intensity. Thus, this predicted relationship was partially supported. The possible reasons for this result will be addressed in the discussion section.

*High levels of anger towards oneself will be associated with elevated levels of depression (Hypothesis 7)*

It was predicted that those participants experiencing high levels of anger towards themselves would also be experiencing high levels of depression. As seen in Table 6, the correlational analysis supported this predicted relationship.

### **3.3.4 Additional analyses**

#### ***3.3.4.1 Results of correlational analyses pertaining to anger toward significant other***

Predictions were not made in the hypothesis set about the relationship between high levels of anger toward significant others and pain, depression and disability.

However, in light of the unexpected finding that anger toward significant other was the second most frequently reported anger target, correlational analyses was also carried out on this anger target. As shown in Table 6, these analyses indicate that anger toward significant other was significantly associated with general and oral disability and depression, but not with pain intensity.

Having established significant associations between the variables described above, examining outcomes using more than one predictor is the next stage of statistical analysis. This will be presented in the next section.

### 3.3.4 Multiple regression analyses

*Pain intensity, depression and disability will independently add to the prediction of overall anger (Hypothesis 8)*

In order to establish the extent to which the independent variables of pain intensity, depression and disability jointly contributed to the experience of anger, a multiple regression analysis was carried out. This was done by entering the demographic variables (gender, age and pain duration) as background variables (Model 1). After entering these, the independent variables (pain intensity now and average week, general disability, oral disability and depression) were entered into the regression model simultaneously and were regressed against the dependent variable, overall anger (Model 2).

As shown in Table 7, the results of the multiple regression analysis revealed that age, sex and pain duration alone, accounted for 10% of the variance of overall anger.

When current and average pain intensity, depression and disability were taken together with age, sex and pain duration, they predicted 72% of the variance of overall anger. The multiple regression also revealed that pain intensity (both current and average over past week) was the only variable to emerge as an independent predictor of overall anger intensity when all the other variables were partialled out. As depression and disability were not found to independently predict overall anger intensity, the final hypothesis (as presented above) was only partially supported.

Table 7. The results of the multiple regression analysis predicting overall anger from pain intensity, depression and disability

<b>Model</b>	<b>Beta score</b>	<b>t-score</b>	<b>Significance</b>	<b>R</b>	<b>R-Square</b>
<b><u>Model 1</u></b>					
<b>Age</b>	-1.010	1.409	0.169	0.319	0.102
<b>Sex</b>	1.565	1.241	0.224		
<b>Pain duration</b>	-7.520E-03	-1.76	0.351		
<b><u>Model 2</u></b>					
<b>Age</b>	3.703E-02	1.528	0.139	0.850	0.723
<b>Sex</b>	-0.105	-0.118	0.907		
<b>Pain duration</b>	-4.135E-03	-0.766	0.451		
<b>Pain intensity (now)</b>	-3.087	-2.523	0.018		
<b>Pain intensity (Ave week)</b>	9.597E-02	5.783	0.000		
<b>Depression</b>	2.009	1.678	0.105		
<b>General disability</b>	-0.479	-0.553	0.585		
<b>Oral disability</b>	0.482	0.301	0.766		

### 3.3.5 Summary of Quantitative Analysis

The findings of the current study reveal high rates of anger and depression in the current sample. Correlational analyses provide support for predicted relationships between (i) overall anger and pain intensity, depression and disability and (ii) anger toward oneself and pain intensity and depression. Additional analyses was undertaken to examine the target of anger toward significant other, and these revealed significant relationships between anger toward significant other and depression and disability, but not pain intensity. Despite these findings, multiple

regression analyses revealed that the only variable that was an independent predictor of overall anger intensity was pain intensity.

## **SECTION 3**

### **3.4 Qualitative Analysis**

The following section begins by providing a brief description of the basic steps involved in undertaking content analysis, and then describes the main findings of the qualitative section of this study.

#### **3.4.1 Developing a coding system**

For the current study, all 15 interviews (which were recorded verbatim on a written protocol) were analysed in detail and then themes or categories were identified until saturation point (the point at which the addition of new categories does not yield any new information) was reached. Some of these categories were specific to individual targets and some were general to the overall experience of anger in chronic pain. These categories were then used to develop a coherent coding system. Once the coding system was set up, the primary investigator coded each of the 15 interviews. In order to establish inter-rater reliability, a second rater was given the complete transcript and also completed the coding. For each question, Cohen's kappa (Cohen, 1960) was used to provide a measure of the degree of concordance between the 2 raters respective sortings of items into mutually exclusive categories.

### 3.4.2 Identified themes

What follows are the results of each of the six questions addressed in turn. First, the kappa values will be presented, and then the number of interviewees reporting information relevant to each of the identified categories will be stated. The categories used in the coding system are presented in bold type. With the exception of question 2, all responses were coded as general responses, that is, the responses relate to all anger targets identified by interviewees. The results for Question 2 are presented according to responses to individual anger targets.

#### 3.4.2.1 Question 1

*Before your pain problem started, would you have considered yourself to be an angry person?*

A kappa value of 0.6 was found for this question, demonstrating good inter-rater reliability. Three categories were generated for this question. Of the interviewees (n=15), 2 people responded **yes** to this question, 9 **no** and 4 were **ambivalent**. Ambivalent responses were those in which a clear response was not given e.g. reports of being “*a bit hot-headed*” or “*prone to frustration*”.

#### 3.4.2.2 Question 2

*Could you tell me some of the reasons why you feel angry towards (target) in relation to your pain?*

A kappa value of 0.8 was found for this question, representing excellent inter-rater reliability. The results of each anger target will be described and a summary presented in Table 8.

### The World

Only 1 category was identified for this anger target. Interviewees reporting anger toward the world (n=2) both reported feeling a sense of **unfairness/injustice** about their chronic pain problem.

### Myself

From those interviewees reporting anger toward themselves (n=6), 4 different categories were identified. One reported feeling angry toward herself due to a **loss of previously valued activity**; 2 people reported feelings of **guilt/self-blame** related to loss of role or failure to follow treatment recommendations; 2 people stated that anger toward themselves was related to their **depression** and 1 person stated that a **failure to achieve goals** due to her pain was a major reason why she felt angry toward herself.

### God/Destiny

One category was identified for this anger target. Interviewees reporting feelings of anger toward God or destiny (n=2) both related these feelings to a sense of **unfairness/injustice** about their chronic pain.

### Person who caused the injury

Only 1 interviewee reported feeling anger toward someone who caused their injury, and this anger was attributed to **iatrogenic factors**. More specifically, she reported that her dentist had unnecessarily extracted a tooth and as a consequence of this intervention nerve damage had occurred. She reported feeling anger both about the cause of her pain, and about her dentist's unwillingness to acknowledge his mistake.

### Employer

Those interviewees describing feelings of anger toward their employer (n=3) all described a **lack of practical help and support** from their employer. In particular,

interviewees reported anger about a lack of belief and understanding about their pain, and inflexibility about working hours and time off to attend appointments.

#### Significant other

From the interviewees reporting anger toward a significant other (n=6), 4 categories were identified. These were: anger about significant others **disbelief** about their pain, their **lack of understanding, lack of practical help and support**, and a feeling that when their significant other did help them it was only through **obligation** rather than genuine empathy or concern.

#### Legal system

Only 1 interviewee reported a feeling of anger toward the legal system and this was due to the legal system's **disbelief** about her pain. Specifically, she had for some years been involved with the local council about her inadequate housing and the negative impact it was having upon her chronic pain. She felt that the solicitors involved in her case failed to believe her reports about the severity of her pain and therefore did not represent her case as well as they could have done.

#### Health-care providers

This was the most frequent anger target identified by the sub-sample of participants interviewed. From those interviewees reporting anger toward health care providers (n=10), 5 categories were identified. Two people reported anger about **insufficient investigation or treatment**; 1 a **lack of an adequate explanation** about their pain; 4 **poor service** (i.e. long waiting times, poor communication between professionals, rude reception staff); 2 **disbelief** (i.e. being told "*it's all in the mind*"), and 1 the **poor interpersonal skills** of doctors (see Table 8).

Table 8. Identified themes for each of the anger targets

Target	Number of interviewees identifying target	Themes identified
The world	2/15	<ul style="list-style-type: none"> <li>• Unfairness and injustice</li> <li>• Loss of previously valued activity</li> <li>• Guilt/self-blame</li> <li>• Depression</li> <li>• Failure to achieve goals</li> </ul>
Myself	6/15	
God/Destiny	2/15	<ul style="list-style-type: none"> <li>• Unfairness and injustice</li> <li>• Iatrogenic factors</li> </ul>
Person who caused the injury	1/15	
Employer	3/15	<ul style="list-style-type: none"> <li>• Lack of practical help and support</li> <li>• Lack of practical help and support</li> <li>• Lack of understanding</li> <li>• Disbelief about pain</li> <li>• Help through obligation</li> </ul>
Significant other	6/15	
Legal system	1/15	<ul style="list-style-type: none"> <li>• Disbelief about pain</li> <li>• Disbelief about pain</li> <li>• Lack of adequate explanation</li> <li>• Insufficient investigation/ treatment</li> <li>• Poor service</li> <li>• Poor interpersonal skills of doctors</li> </ul>
Health-care providers	10/15	

### 3.4.2.3 Question 3

*How long have you felt angry toward (target)? i.e. did it start immediately the pain started, or did it build up over time?*

A kappa value of 0.9 was found for this question, demonstrating excellent inter-rater reliability. From interviewees responses (n=15), 4 categories were identified. Six interviewees reported that their anger **pre-dated pain**; 3 stated that it started **immediately pain started**; 3 reported that their anger **built up over time**, and the remaining 3 stated that their feelings of anger had just started very recently.

#### 3.4.2.4 Question 4

*How has feeling angry about (target) affected you? (if needed) Has it affected your work/relationship etc?*

A Cohen's kappa calculation revealed a kappa value of 0.6 for this question, indicating good inter-rater reliability. From interviewees responses (n=15), 6 categories were identified. Seven interviewees stated that their anger had led to **increased confrontation** with their family and friends; 3 stated that it had led to **withdrawal** from their family and friends (both in terms of less communication with them and a reduction in time spent with them); 6 of interviewees stated that their anger had caused **problems with their mood** (in particular depression and anxiety); 4 stated that their angry feelings **made their pain problems worse** (in particular, leading to more intense pain which tended to last for longer periods); 2 interviewees stated that their anger had led to a **deterioration in work performance** and finally, 1 interviewee stated that her anger had led to deterioration **in sleep quality** (see Table 9).

Table 9. Identified themes relating to how anger has affected interviewees

Identified theme	Number of interviewees
• Increased confrontation with family/friends	7/15
• Mood disturbance	6/15
• Made pain worse	4/15
• Withdrawal	3/15
• Deterioration in work performance	2/15
• Deterioration in sleep quality	1/15

### 3.4.2.5 Question 5

*How do you deal with this anger?*

A kappa value of 0.7 was found for this question, demonstrating excellent inter-rater reliability. From the interviewees responses (n=15) nine categories were identified. A total of 7 interviewees were identified as **maladaptive coping** (either withdrawing from others, becoming aggressive or drinking alcohol); 1 person reported that they took **planned time-out**; 1 person used **distraction**; 3 people used **positive thinking**; 5 **expressed feelings** of anger through talking with friends or family; 2 managed their anger simply through **acceptance** of their feelings; 2 channelled their anger into **constructive activity** (e.g. focusing on work or sorting out finances); 1 used **active relaxation** as a means of managing their anger; and 1 interviewee stated that she dealt with her anger through engaging in **long-term counselling** (see Table 10).

Table 10. Identified themes relating to how interviewees manage their anger

Identified theme	Number of interviewees
• Active relaxation	1/15
• Long-term counselling	1/15
• Planned time-out	1/15
• Distraction	1/15
• Constructive activity	2/15
• Acceptance	2/15
• Positive thinking	3/15
• Expressing feelings	5/15
• Maladaptive coping	7/15

### 3.4.2.6 Question 6

*What would help you to feel less angry with (target)?*

A kappa value of 0.7 was found for this question, indicating excellent inter-rater reliability. From the interviewees responses (n=15) 6 main categories were

identified. Four interviewees stated that **better service** from health care providers would make them feel less angry; 4 claimed that **being believed** would help; 2 stated that **less mood disturbance** would reduce their levels of anger; 2 felt that the **resumption of lost roles** would help; 3 reported that only **pain reduction** would decrease their anger (see Table 11).

Table 11. Identified themes relating to factors that would help interviewees to feel less angry

Identified theme	Number of interviewees
• Better service from health care providers	4/15
• Being believed	4/15
• Less mood disturbance	2/15
• Resumption of lost roles	2/15
• Less pain	3/15

### 3.4.3 Summary of the Qualitative Analysis

Content analysis of the 15 interviews undertaken in the study revealed a number of pertinent themes in the experience of anger in chronic facial pain. In particular, issues relating to pain being believed, the impact of pain upon mood and the effect that anger has upon relationships with others, seemed to be important across a number of anger targets.

The following discussion chapter will be concerned with examining the quantitative and qualitative findings in greater detail, and discussing how they relate to previous theoretical and research literature in the area of chronic pain and anger. The issue of what contribution the findings of this current study might have on future research and clinical work in this area will also be discussed.

## DISCUSSION

**4.1 Statement of intention**

The purpose of this chapter is to address the theoretical, clinical and research implications resulting from the findings of the current study. First, in order to provide a context for the discussion, an overview of the study will be provided. Second, the main findings of the study will be discussed, with particular emphasis on how these findings relate to the general theoretical considerations and research findings presented in the introductory chapter. Third, a number of broad themes arising from the qualitative data analysis will be described and discussed. Fourth, the methodological strengths and weaknesses of the study will be outlined and discussed. Finally, the clinical implications of the findings, and directions for future research in the area of chronic pain and anger are discussed.

**4.2 Anger Targets in chronic facial pain: an overview of the current study**

Over the past forty years, researchers and clinicians working within the field of chronic pain have become increasingly aware of the crucial role of negative affect in the development and maintenance of chronic pain conditions. Anecdotal evidence highlights anger as particularly crucial, both in the experience of chronic pain and in terms of the outcome of chronic pain treatment programmes (Fernandez & Turk, 1995). However, there is a lack of empirical investigation into the relationship between chronic pain and anger, and virtually none examining chronic facial pain

specifically. Recent studies that have examined this relationship have revealed significant positive associations between anger and pain severity, emotional distress, depressed mood and perceived disability (Okifuji et al., 1999). Two studies in particular (Fernandez & Turk, 1995; Okifuji et al., 1999) consider the role of anger in chronic pain, and have examined towards whom (or what) anger is directed (anger 'targets'). Initial findings have suggested that chronic pain patients are likely to direct their anger at certain targets more than others. For example, Okifuji et al. (1999) revealed that chronic pain patients were more likely to direct their angry feelings toward themselves and their health care providers. From these results they hypothesised that the experience of anger may well vary according to the target of an individual's anger. In considering these findings, a number of specific hypotheses were generated about the relationship between chronic facial pain and anger for the current study. First, in view of the available literature, a hypothesis stating which anger targets were most likely to be selected in the sample was presented. Second, based upon the recent empirical work on chronic pain and negative affect, two hypotheses were presented regarding the prevalence of anger and depression in the sample. Finally, six hypotheses predicting the relationship between chronic facial pain, anger, depression and perceived disability were presented.

An overview of the literature also reveals that a good deal of research in the area of chronic pain and negative affect has focused upon the role of depression in chronic pain. A consistently strong relationship between chronic pain and depression has been observed in research studies, with many studies revealing that up to two-thirds of chronic pain patients suffer from a major depressive syndrome. However, there

remains uncertainty with regards to the cause, the strength and the nature of co-existing chronic pain and depression.

Much of the research described above has focused upon chronic back pain or other types of pain; there is a dearth of research specifically studying chronic facial pain patients, despite the prevalence of the condition. As the quality of the experience of chronic facial pain is likely to be very different from other types of pain, exploration of the relationship between chronic facial pain specifically and anger, depression and perceived disability was the purpose of this current study.

### **4.3 Overview of results in relation to previous theoretical and empirical findings**

In light of the hypotheses presented in this study, the next section provides an overview of the findings of the current study and describes how these relate to previous theoretical and empirical findings.

#### **4.3.1 Prevalence of anger in chronic facial pain**

The findings of the current study support the hypothesis that a high proportion of chronic facial pain patients report some degree of anger. Indeed, over 90% of participants reported experiencing some degree of anger. This finding is consistent with Okifuji et al.'s (1999) study, in which frequency distributions also revealed a high rate of anger in a chronic pain population (69%). The finding that anger is a salient feature of chronic facial pain patients could be explained by a number of reasons.

First, as discussed in section 1.3.2 of the introductory chapter, physiological explanations of the association between pain and anger could be useful in helping to understand this strong relationship. Physiological theory suggests that pain, as an aversive experience, innately triggers angry reactions, with little or no cognitive mediation. Such theories also view anger as an adaptive response to pain, thus motivating people to overcome or eliminate the unpleasant stimulus (Izard, 1993). As Berkowitz and Heimer (1989) explain: “*aversive stimulation produces negative affect . . . this affect presumably then activates a variety of expressive-motor reactions, feelings, thoughts and memories that are associated with both fight and flight*”. For both these explanations, it would follow that the more intense the level of pain, the higher the level of anger an individual would experience as a response. However, although this might well account for some instances of anger, these explanations seem inadequate and oversimplistic in that they fail to explain individual differences within the sample (some participants reported very intense pain, yet they reported very low or no feelings of anger; others had virtually no pain and very high anger levels). In discussing physiological explanations, the gate control theory as described in section 1.2.3.2 of the introductory chapter could also be useful in providing an explanation for the strong relationship between chronic pain and anger.

A second, and perhaps more comprehensive account of the relationship between chronic pain and anger, are the range of problems and frustrations associated with living with a chronic pain condition. These frustrations tend to fit into two broad categories: (i) difficulties with the medical services in which they are involved, and (ii) issues relating to disability, both physical (i.e. inability to attend work, loss of

valued role) or psychological (i.e. mood changes). A fuller description of these two issues will be addressed in sections 4.3.2.3 and 4.3.2 respectively.

This section provides a brief overview of some of the possible explanations as to why such a high proportion of chronic facial pain patients reported feelings of anger in the current study. In an attempt to better understand why this was the case, a detailed analysis of the targets of anger identified in this sample was carried out. What follows is a discussion of these findings.

#### **4.3.1.1 Anger toward self**

The findings of the current study supported the hypothesis that one of the two most frequently selected anger targets in this sample would be anger toward self. As discussed in section 1.5 of the introductory chapter, Okifuji et al. (1999) also reported this to be the most common anger target amongst his chronic pain sample. Although previous research investigating attributions of blame for pain among chronic pain patients suggest that chronic pain patients do not tend to blame themselves for their pain (DeGood & Kiernan, 1996; Williams, Robinson & Geisser, 1994), in considering the potentially negative effects of long-term pain upon a number of areas of a individual's life, it does not seem unreasonable to assume this could have a negative impact upon the way chronic pain patients view themselves. The physical and psychological limitations that can often accompany chronic pain conditions are critical in considering why such a high proportion of chronic facial pain patients report angry feelings, and may be particularly relevant to anger toward self. Chronic pain is frequently associated with a decline in functioning, resulting in loss of previously valued activities and roles (Jensen & Caroly, 1992; Jensen et al.,

1994), a perception that pain dominates the individual's life, and a sense of helplessness about the individual's situation (DeGood & Kiernan, 1996). It could be hypothesised that all of these factors lead to elevated levels of negative attributions about oneself which, in turn, lead to feelings of frustration and anger.

In considering such findings, it is worth examining the role of guilt, blame and shame in the experience of pain. As discussed in paragraph 1.5.1 of the introductory chapter, Finerman and Bennett (1995) highlight how social institutions' increasing regulation and monitoring of health-related behaviours, coupled with an increasing professional and public awareness of the links between lifestyle and illness, influence attributions of responsibility and blame in illness. They argue that this can create a situation whereby the onset and outcome of illness are attributed to the sufferers, who are open to blame for personal failures which 'caused' their condition (Kirmayer, 1988). This seems particularly pertinent in the case of chronic pain conditions, where there is often no identifiable cause, and the view that pain is 'psychogenic' and 'all in the mind' is still held by people both within and outside of the medical profession. However, the interviews conducted in the current study revealed that it is not so much that chronic pain patients blamed themselves for their pain, as felt angry about the impact their pain had upon their lives; in particular the loss they had experienced, both in terms of their social environments, their personalities and their relationships with others. For example, interviewees in the current study stated: *"I feel so guilty and angry with myself that I can't do the things the kids want to do because I'm in so much pain"; "I suppose I'm angry because I haven't done better in my studies. I know I can't study as hard as I used to because of the pain, but I still feel I'm to blame for not doing better in the exams."* Evidence

of the crucial effect of 'secondary loss' on chronic illness was provided by Hobfoll (1989) whose Conservation of Resource (COR) Theory proposed that chronic stressful life events resulted in widespread loss of resources, abilities, potentials and interpersonal relationships, and that these intensely stressful consequences of chronic conditions frequently result in anger.

The notion of the sick role is also relevant in considering issues of responsibility, blame and shame in chronic pain. Research has demonstrated that for some ambiguous or chronic health problems, sick role status is denied (Chrisman, 1977; Waxler, 1980). Therefore, despite their condition, the expectation is that these individuals should be well able to continue with life as normal and when this is not possible, reactions from others and evaluations about self are likely to be negative. In considering these theoretical positions, it could be argued that chronic pain patients are not only forced to tackle health threats, but are also at increased risk of social stigma. Information gained from the qualitative section of this study revealed that for some people sick role status was denied; with interviewees reporting that they were expected by partners, friends or families to be able to continue as normal, despite sometimes experiencing intense pain. Furthermore, they reported that when they were unable to engage in normal activities (particularly, activities that others were required to help them with) they were made to feel lazy, useless and a burden to others.

#### **4.3.1.2 Anger toward significant other**

This second most common anger target in the current study was one that was not predicted in the hypotheses. The possible reasons for this unexpected finding will be

considered briefly. Although few studies have examined the role of patient *and* significant other-related factors in the development and maintenance of anger in chronic pain, there have been some studies examining the effects of pain on significant others (most commonly spouses). For example, some studies have reported that particular spousal characteristics serve to maintain impairment in pain patients and negatively affect treatment outcome (Roberts & Reinhart, 1980; Romano, Turner & Clancy, 1989). Other studies have demonstrated that the anger of patients with chronic pain adversely affects the mood of their spouses, and that spouses are alienated when anger is expressed toward them (Lane & Hobfoll, 1992). The latter finding implies that one pathway through which anger may influence adjustment to chronic pain is via the detrimental effect of patients expression of anger on spouse support. What is clear from previous research is that social support is a crucial element in successful adaptation in chronic illness and poor adjustment is a likely consequence of the withdrawal of emotional spouse support (Wortman & Conway, 1985; Thoits, 1986). It was this withdrawal of emotional and practical support from significant others that was a dominant theme in the interviews undertaken in the current study. In particular, the sub-sample of participants who reported anger toward significant others specifically, reported feeling let-down, disbelieved, rejected, invalidated and generally unsupported (both emotionally and practically) by their loved ones in relation to their chronic pain.

The theme of not being believed seemed to be particularly pertinent in interviewees explanations of why they felt anger toward significant others. With many chronic pain conditions there are often no physical signs of disability or suffering, and this makes it impossible to 'prove' that pain actually exists. Therefore, a number of the

interviewees not only expressed their own sense of uncertainty with regards to the etiology of their pain, but also felt profoundly vulnerable to the judgements of others. As Osborn and Smith (1998) point out, this issue exposes the inadequacy of the primarily medicalised illness representations of themselves and those around them; there is a conflict between their experience of their pain and their lack of a useful and meaningful framework in which to understand it themselves and to explain it to others. Interviewees described an awareness of the threat of rejection from significant others, both due to their perception that they were useless and a burden on others, and because they felt that they were often disbelieved (*“He’s not supportive and he doesn’t even try to understand how bad the pain is. I don’t think he actually believes it’s as bad as I say it is. I can tell he’s getting really fed up with it”*). A number of interviewees also described how a lack of ‘real’ evidence of pain had led to feelings of guilt that friends or family members had suffered as a result of their pain and/or feelings of anger about not being believed (*“I can understand why they find it hard to believe, because there’s nothing actually there to see, so I then feel guilty and think well, maybe I am over-reacting”*). In their research, Osborn and Smith (1998) found that the problems associated with being believed had a paradoxical effect on the behaviour of some chronic back pain patients. As appearing capable and able did not appear to match with their claims of pain, they felt forced into a situation where they appeared less able to function than they actually were, simply to conform to the expectations of what others considered being in pain meant. This finding is interesting to note, particularly when assessing the level of perceived disability in chronic pain patients. The anxiety about being believed about pain also appeared to be relevant to employment in the interviews conducted in this current study. A number of interviewees expressed concern about

their employer's lack of understanding and suspicion about their pain. These reports support findings from others studies that having pain acknowledged as 'real' is a huge source of concern for pain patients who take time off work (Pinder, 1995; Tarasak & Eakin, 1995).

#### **4.3.1.3 Anger toward medical services**

As mentioned in section 4.3.1 of this chapter, in considering the frequent difficulties experienced by chronic pain patients with regard to medical services, it is unsurprising that the proportion of participants reporting anger toward health care providers was high in the current study. Okifuji et al. (1999) reported similar findings, with anger toward health care providers being the second most frequently selected anger target. In this study, although the rate of participants reporting anger toward health care providers was lower in relative terms, this anger target was still the third most common anger target, being identified by almost half of the sample. It should be recognised that as anger is often considered a socially undesirable response, participants in the current study might have been reluctant to report their true level of anger. This point is particularly pertinent when it is considered that participants were attending a new pain clinic and may have had anxieties about being perceived as a 'difficult' patient. Therefore, it is possible that this finding may be an underestimate.

There are a number of difficulties associated with chronic pain patients' contact with medical services. First, due to the poor understanding of a lot of chronic pain conditions, sufferers often receive limited feedback on the etiology of their condition and it is not uncommon for them to experience repeated treatment failures

(Fernandez & Turk, 1995). Okifuji et al. (1999) also highlight this problem and state: *“...it may be said that it is reasonable to feel some anger toward the healthcare provider following numerous diagnostic tests with inconclusive results and treatments (including surgeries) and no successful outcomes”*. Other frustrations experienced by chronic pain patients include those that apply also to other users of the current, under-funded National Health Service; for example, frequent administrative errors, long periods of waiting for referrals and appointments and brief appointment slots. Themes that were identified from the interviewees that reported feeling angry toward health care providers were: dissatisfaction with medical services (e.g. long waiting times for appointments) (*“You have to wait months for an appointment then you end up spending 5 hours in a waiting room, waiting to be seen”*), poor administrative procedures, miscommunication between professionals (e.g. confusion over agreed treatment plans), and poor interpersonal skills of doctors (e.g. abruptness, insensitivity with regards to patients concerns/feelings) (*“You wait ages to be seen then you’re told ‘it’s all in your head’ and your pushed away onto somewhere else. They also never give you eye contact. They’re so rude; think they’re above you”*).

#### **4.3.2 Prevalence of depression in chronic facial pain**

As discussed in paragraph 1.6.2 of the introductory chapter, prevalence estimates of depression in chronic pain populations have varied widely and the extent to which depression and chronic pain are associated remains a controversial issue. The findings of the current study support previous research of a relationship between chronic pain and depression, though the rates of clinically significant depression in

this facial pain sample are lower than some previous prevalence estimates (Lindsay & Wyckoff, 1981).

Many attempts have been made to explain the high rates of depression in chronic pain. Although not all of these possible explanations can be discussed within the limits of this chapter, two particularly interesting explanations will be discussed in an attempt to explain why a sub-set of patients in the current study reported high depression scores. The first relates to Williams (1993) concerns about the somatic content of the Beck Depression Inventory. She argues that somatic concerns are frequently associated with chronic pain conditions and hence the possibility of that somatic items could lead to an unusually high rate of false positives in chronic pain samples. In light of the difficulties associated with the use of the BDI in pain populations therefore, it should be considered that the results of the current study may well reflect an overestimation of the true rate of depression in the current sample.

A second, interesting explanation (which draws from a cognitive behavioural model of depression) is also worth considering in the context of the current study. The stress-diathesis framework (Banks & Kerns, 1996) proposes that both diathesis (negative schemas) and stress (i.e. difficulties with medical services, loss of functioning etc.) are a part of the chronic pain sufferers' daily lives. In this study, information gained from the interviews seemed to indicate that this model was particularly useful in explaining the relationship between chronic pain and depression. All interviewees described stressful experiences in relation to their pain condition, however, some described an apparently clear relationship between these

stressful experiences a range of negative thoughts about themselves and those around them. For example, for one interviewee described how invalidating responses about her pain from her doctor and partner activated a cognitive distortion process (Beck, 1967, 1976). Her partner's response that "*if the pain was that bad you'd not have been able to go shopping earlier that morning*" led to thoughts of "*maybe I am over-reacting about my pain and it is 'all in my mind' as the GP said*". This, in turn, led to feelings of self-recrimination, shame and withdrawal from others. Another interviewee revealed that the lack of an explanation from health professionals had led to overgeneralisation errors ("*if they don't know what's wrong, they're never going to be able to help and I'm going to suffer forever*") and global attributions ("*this pain is completely ruining my life*"). In these two interviewees it appeared that these persistent negative thoughts were producing feelings of hopelessness about the future which, in turn, were leading to some of the cognitive, emotional and behavioural symptoms synonymous with clinical depression.

In discussing these findings it might be useful to consider the idea of 'attributional style' (Raps, Peterson, Reinhard, Abramson & Seligman, 1982) in explaining the puzzle of why some chronic pain patients experience depression whilst others do not. This model suggests that when confronted with the same negative life event, people who display a generalised tendency to attribute negative outcomes to internal, stable or global factors should be more likely to experience a depressive mood reaction than people who typically attribute negative outcomes to external, unstable or specific factors.

From the findings of the qualitative analysis it could also be hypothesised that the experience of chronic pain (either in conjunction with, or independent of stress) serves to activate and/or compound a range of underlying negative schemas, including anger, guilt, self-blame and shame. If this were the case, there would be a number of implications in terms of psychological treatment for chronic pain groups (see section 4.7).

In sum, the findings of the study support the hypothesis that a high proportion of the chronic facial pain sample do suffer from depression. Furthermore, findings from the qualitative section of the study indicate that, at least for some facial pain patients, a plausible explanation for the relationship between chronic pain and depression in this sample is that stress associated with chronic facial pain (e.g. secondary losses, rejection or invalidation from others) interacts with negative schema and attributional style, to produce a depressive reaction.

#### **4.3.3 The relationships between overall anger, anger toward self and pain intensity**

Correlational analyses revealed overall anger intensity to be related to pain intensity, both current ( $r=0.344$ ,  $p=0.030$ ), and over average week ( $r=0.717$ ,  $p=0.000$ ) thus supporting previous empirical evidence of a relationship between these two variables. A relationship was also found between anger toward self and pain intensity over the average week ( $r=0.475$ ,  $p=0.001$ ). However, it was not associated with measures of current pain intensity. Some hypotheses about the relationship between anger and chronic facial pain have already been addressed in section 4.3.2 of this chapter. What follows are some possible explanations for the finding that

anger toward self is associated with average pain intensity, based upon information gained through the interviews conducted in the current study and the available theoretical and empirical evidence base.

The relationship between pain intensity and anger toward self is likely to be complex and multidimensional. From the interviews, a complex sequence of events starting from the onset of a painful episode to an angry feeling or reaction was identified. A number of participants described that the worse their pain became, the more impact it had upon their ability to do things (whether this be to carry out daily chores or hold a conversation with a loved one). This loss of functioning not only had a negative impact upon interpersonal relationships but also served as a reminder of the range of secondary losses consequent of their chronic pain condition. For some people this led to feelings of unfairness, injustice, frustration and anger at their situation. Furthermore, it seemed to be that the more intense the pain was described as being, the more amplified the distressing nature of the factors involved in this sequence, and the more intense the consequent angry reaction. In sum, the reports of a number of the interviewees in this study seemed to indicate that the observed relationship between anger and pain intensity was mediated by disability.

An alternative explanation that might account for the observed relationship between high pain intensity and high anger intensity is the cognitive appraisal models of emotion. This model proposes that anger is an emotion generated by disapproval of blameworthy actions that have negative consequences for the self or lead to feelings of injustice or mistreatment (Ortony et al., 1988; Roseman, 1991; Averill, 1982). As outlined in section 1.5 of the introductory chapter, Ben-Zure and Breznitz (1991)

argue that human anger is affected by three basic aspects of a harmful event: first, the extent of damage, its intentionality and its preventability. These three dimensions seem to be particularly pertinent in chronic pain, where the precipitating factor is often (either in reality, or in the pain sufferers opinion) the result of mishap in which another person might be held responsible. Almost half of the sample in this current study could relate their pain to a specific experience or event, and approximately one third of the sample reported feeling some degree of anger toward the person who they perceived caused their injury. Unfortunately, a measurement was not taken of whether that event or cause was attributed to self or others.

#### **4.3.4 The relationships between overall anger, anger toward self, depression and perceived disability**

Correlational analyses supported the hypotheses that overall anger and anger toward self are related to depression ( $r=0.456$ ,  $p=0.001$  and  $r=0.467$ ,  $p=0.001$  resp.) The findings also supported the hypothesis that overall anger is associated with high levels of perceived disability, both general ( $r=0.261$ ,  $p=0.087$ ), and facial pain specific ( $r=0.476$ ,  $p=0.000$ ). A number of possible mechanisms that might account for this relationship will be considered.

First, the observation that depression and anger toward self share a common mechanism; that is, negative attributions of self has been proposed (Abramson, 1978). The qualitative findings appear to support this view. Several interviewees revealed that they felt anger not about the cause of their pain, or even the pain itself, but about their inability to cope with their pain, and the negative impact their pain and anger has had upon their ability to engage in work, leisure and personal

relationships. This perceived inability to cope appeared to lead to a number of uncomfortable and distressing emotions; specifically, guilt, worthlessness and hopelessness. As outlined in section 1.2.3.4 of the introductory chapter, cognitive behavioural theory proposes that distorted thinking about oneself can fuel both depressed mood and anger. This assertion appears to be supported both by Okifuji et al.'s (1999) findings and the findings of the current study; that overall anger in addition to anger toward oneself, is significant in depression in chronic pain. In sum, from both the quantitative and qualitative analysis in the current study, it seems reasonable to conclude that for some chronic facial pain patients, a perceived inability to cope and/or disability is a crucial factor in the relationship between anger toward oneself and depression.

Within this context, a further notable issue that was raised by some interviewees was that in evaluating their situation, they made comparisons with their past selves. For example, one woman described a sense of intense frustration and anger about not being able to engage sufficiently well in her course to pass her exams due to her pain problem, and talked about the limits this imposed upon her in terms of her plans for a future career. Quite clear comparisons were made between her past 'competent and able' self and her current 'inadequate and disabled' self. What was most interesting of all, however, was that the idealised memories of past selves, rather than providing a source of self-regard, strength, reassurance and hope for the future, seemed to be acting as reminders of the loss associated with her pain and, thus, increasing her low mood, frustration and feelings of anger. It has been argued that in order to accept and adapt to chronic pain, a person must interpret and restore the disruption pain creates in a way that makes sense to that person as part of their life story (Bury,

1988). In the current study, a number of those interviewed demonstrated little evidence of this reparation process, but rather a preoccupation with the idealised past and current losses, regrets and feelings of injustice and anger.

#### **4.3.5 Pain intensity, depression and disability as independent predictors of overall anger**

The hypothesis that pain intensity, depression and disability would independently add to the prediction of overall anger was only partially supported in the current study. The reason for these findings are a little puzzling, particularly in light of the qualitative findings, which seemed to reveal that the low mood and disability associated with chronic facial pain were extremely distressing and frustrating. However, the weak association between anger and disability does seem to be consistent with a number of previous research studies (Duckro, Chibnall & Tomazic, 1995; Okifuji et al., 1999). This has led some researchers to suggest that anger may have an indirect impact upon disability through depression (Okifuji et al., 1999).

#### **4.3.6 Additional findings**

A further theme that was dominant in the interviews undertaken in the current study were individual differences in managing feelings of anger. As this is an issue which may be important in terms of the long-term outcome of chronic pain conditions, it will be briefly discussed.

#### **4.3.6.1 Coping with anger**

'Coping' has been defined by Jensen et al. (1991) as "*purposeful efforts to manage or vitiate the negative impact of stress*". For some years now researchers in the field of chronic pain have categorised coping efforts into active and passive dimensions (Brown & Nicassio, 1989); whereby active strategies are defined as responses requiring a person to initiate some instrumental action to manage their pain (such as taking some exercise) and passive strategies involve withdrawal or giving up control to an external force or agent (e.g. using medication or resting).

In this study, it was noted that the majority of interviewees fell into one of these two broad groups in coping with anger. However, the current study did not examine whether these strategies were general strategies for managing anger toward all targets and for managing pain, or whether different strategies were used for different anger targets and for pain. The finding that people tend to be 'active' or 'passive' in their coping with anger relates to the idea of 'anger management style', as described in section 1.5.2 of the introductory chapter. Although the literature in this area is too extensive to describe within the limits of this chapter, both the inclinations to express or suppress anger have been implicated in the development and/or maintenance of chronic pain conditions, and it would be particularly interesting to examine anger management styles in relation to anger targets.

#### **4.4 Limitations of the current study**

In discussing the findings of this research study, a number of methodological limitations should be taken into account. First, in considering the correlational design of the study, directionality should be interpreted with caution. For example,

the results do not provide information concerning whether anger influences pain, pain influences anger, or whether there is a bi-directional relationship. Also in correlational design, third variables that may predict outcome may be hidden.

Second, it should be noted the Targets of Anger Scale is the first questionnaire designed to measure anger toward specific targets and, as such, there are no other instruments from which to ascertain the concurrent validity of these items.

A third point relates to the size of the sample in the current study. As mentioned in the methodology section, due to circumstances beyond the control of the researchers, access to potential participants was drastically limited. In fact, more than one-third of the pain clinics from which the sample was to be recruited were cancelled due to staff illness and bereavement. Therefore, the final sample consisted of significantly less participants than had been planned at the outset of the study. This set of circumstances inevitably had an impact upon the statistical power of the study, however all attempts were made to maximise the size of the sample.

Fourth, the quantitative section of this study used self-report questionnaires to measure a number of psychological factors and these data were all collected at one time-point. Collecting data in this manner renders the data to influences such as mood contamination and shared method variance. For example, if the respondent was feeling particularly low this might have influenced the high correlation between pain intensity and anger. A related point is that self-report questionnaires are known to be open to the influences of generalised mood effects and mental state. Although it was not possible within the limitations of the current study, it would have been

useful to use other methods of assessment; such as the reports of other individuals or direct observation, in order to reduce biases that might exist from the exclusive use of self-report.

A final point worthy of note is that anger is an extremely common emotion, experienced by nearly everyone, and most people report experiencing anger several times a week (Averill, 1983). The Target of Anger Scale has not been used to assess anger levels in non-chronic pain populations and, therefore, it cannot be stated with certainty that the high levels of anger found in this chronic facial pain group would not be found in a non-pain group.

#### **4.5 Strengths of the current study**

Although there were a number of methodological limitations of the current study, there are also a number of sound methodological features which lend support to the findings described. First the study used both quantitative and qualitative techniques in the analysis of data. Through adapting a qualitative approach to complement the quantitative method used in this study, it was possible to access an 'insider's perspective' (Conrad, 1987) of the what it is like to live with chronic facial pain and investigate the range of underlying processes implicit in the chronic pain experience. The interesting and potentially important themes that were revealed using this approach simply would not have been identified had a purely quantitative approach been utilised.

A second design strength was that all the stated hypotheses were theoretically driven and this allows the findings of the current study to be integrated into current theoretical and clinical conceptualisations of chronic pain and negative affect.

#### **4.6 Implications for future research**

In considering the findings of this study, there are several areas of future research that it is suggested might add a valuable contribution to the field of chronic pain.

First and foremost, future research should continue to focus upon the interrelationship between chronic pain and anger, both in terms of the extent and expression of anger in chronic pain sufferers, and in terms of delineating specific interactions of anger targets.

Second, although it is generally assumed that anger is a negative state, as physiological models of anger suggest, anger can also have an adaptive function. For example, although anger toward self may lead to feelings of hopelessness and poor motivation, anger toward health care providers may serve as a motivating force to request forms of treatment that the individual considers might be more helpful. In this respect it would be interesting to examine the possible relationships between anger targets and adaptive functioning in chronic pain and how different anger targets might interact with pain treatment programmes.

Third, a longitudinal design in future studies would also be useful, as it would allow investigation into which factors (anger, guilt, depression, disability) might predict

chronic pain outcome and would also elucidate the existence of facilitative and detrimental anger targets.

Finally, like a number of studies that have addressed anger in chronic pain, gender differences could not be examined in the current study due to an insufficient number of men in the sample and this would be a factor worthy of consideration in future research examining anger targets in chronic pain.

#### **4.7 Clinical implications of the current study**

The findings of the current study have a number of potential implications in terms of the design and implementation of future pain treatment programmes.

First, a diathesis-stress framework, where vulnerability factors and stress factors are identified, may prove useful to clinicians in terms of formulating and treating chronic pain patients. Information gained from the interviews revealed that areas that would be particularly useful to address would be (i) the identification and challenging of negative thoughts related to stressful pain-related events/interactions, and (ii) better managing challenges such as responding to rejecting or invalidating comments from health professionals or others.

Related to the issue of negative thoughts and negative self-schemas in the treatment of chronic facial pain patients, are the themes of guilt, shame, blame and loss which emerged in the qualitative section of the study. These findings highlight the importance of these psychological processes in the experience of chronic pain condition. Therefore, as well as enabling patients to understand the nature of their

pain and learn a range of coping skills and strategies, emphasis should also be placed upon understanding their pain in a less self-persecutory manner. Although these would undoubtedly be challenging and uncomfortable issues to address, it would seem likely that leaving such issues unresolved might result in poor treatment outcome. This is supported by De Good and Kiernan's (1996) study, which demonstrated that pain patients who attribute blame for their pain reported significantly more concurrent distress and were significantly less likely to expect treatment to provide benefits to them.

In light of the high levels of anger toward significant others, interventions which address relationship issues both specific to the patient's pain problems (e.g. the accuracy of the couple's perception about the prognosis of the chronic pain condition or anger/guilt about the pain patient's inability to work) and more general relationship issues (e.g. communication difficulties) might also be crucial in treating chronic pain patients.

Dissatisfaction with health care providers, in particular, health care professionals was also a feature of the qualitative analysis. In light of the widely acknowledged fact that the likelihood of a given treatments being effective is often dependent upon a mutually trusting and co-operative relationship, this finding is concerning. If the patient is hostile, mistrustful and angry then it is extremely likely that this will lead to poor compliance, non-co operation and increased feelings of hopelessness about the agreed treatment plans. Such factors may lead to a vicious cycle in which treatment fails, levels of frustration and anger heighten and the patient is trapped in a

self-perpetuating cycle of failure and frustration. Fernandez and Turk (1995) suggest that this might be one reason why patients who have not improved in previous pain programmes have observed to be poor candidates for success in subsequent programmes (Turk & Rudy, 1990). In sum therefore, close attention to the therapeutic alliance in the treatment of chronic pain conditions should be observed. Some clinicians may be unaware of the importance of the therapeutic alliance in the success of treatment and it may be that training in such areas is necessary in order to highlight this important issue and provide suggestions about how to overcome situations in which an impasse has been reached with a patient.

#### **4.8 Conclusion**

The findings of this study supports previous empirical research that anger is a multifactorial construct in chronic pain. This study has shown that not only is anger a dominant and crucial emotion in the experience of chronic pain, but that specific targets of anger are fundamental to the quality of the chronic pain experience. Interestingly, although a number of psychological factors were related to the overall levels of anger, only pain intensity emerged as an independent predictor of anger when all other variables were controlled for, suggesting that intensity of pain is a crucial factor in the experience of anger. Anger toward self and significant others were the most commonly selected targets and in relation to these, qualitative analysis revealed major themes to be anger, guilt and self-blame about loss of functioning and a desire for their pain to be believed and to be understood and supported by significant others. There was little evidence from the qualitative analysis that chronic pain patients blamed themselves for their pain.

These findings have a number of clinical and theoretical implications. First, the issue of anger might be usefully addressed in pain management programmes. An acknowledgement of the high levels of anger experienced by chronic pain patients (particularly toward self) might assist both in terms of normalising negative reactions to disability, and in planning strategies to better manage future angry feelings. The presence of distressing and sometimes debilitating effects of stigmatising emotions such as self-blame and guilt, in relation to mood and disability should also be taken into account when assessing and treating chronic pain patients.

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**APPENDIX 1**

**ETHICAL APPROVAL**

Dr RA Jeffreys - *Chairman*

Please address all correspondence to:  
Mr Philip Diamond - *Ethics Administrator*  
Email: [philip.diamond@uclh.org](mailto:philip.diamond@uclh.org)

**EDI/EDH Joint Research & Ethics Committee**

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10 December 2001

Miss J McGillion  
Sub Department of Clinical Health Psychology  
UCL

Dear Miss J McGillion,

**Study Ref: 01/E015 (please quote in all correspondence)**  
**Title: An investigation in to the significance of anger targets in chronic facial pain**

Thank you for your recent application to the JREC regarding the above study. Your application has now been approved by the committee.

Please note that it is important that you notify the Committee of any adverse events or changes (name of investigator etc) relating to this project. You should also notify the Committee on completion of the project, or indeed if the project is abandoned. **Please remember to quote the above number in any correspondence.**

Yours sincerely



**Dr RA Jeffreys**  
**Chairman**

**APPENDIX 2**

**INFORMATION SHEET FOR PARTICIPANTS**

## INFORMATION SHEET FOR PARTICIPANTS

### **Research Study**

#### ***An investigation in to the signlificance of anger targets in chronic facial pain***

#### **Background**

Chronic pain is major health problem which causes a great deal of distress to many sufferers. Although we know that there are many physical causes for chronic pain, research studies have also shown us that certain aspects of a person's mood (such as feeling low, anxious or angry) can play a part in chronic pain problems.

#### **Why the need for research?**

Although we know that feelings of anger are important in pain, we need to find out the reasons why people feel angry, who they feel angry toward and how this anger affects their pain. Some research has been carried out in the past, but not looking at people with facial pain in particular. The more information health professionals can gather about how a person's feelings of anger might affect their facial pain, the better able they will be to provide effective treatments for facial pain sufferers.

#### **About the project: What will people be asked to do?**

The researchers hope to ask a group of about 100 people with chronic pain to fill out six questionnaires. The questionnaires will ask about your pain, your mood and some general details about you. It should take no longer than 20 minutes to fill in the questionnaires. A few people will also be asked to take part in a short interview with a researcher, where they will be asked some extra questions about their pain and any feelings of anger that they might be experiencing.

***The researcher will be happy to answer any questions that you might have. You do not have to take part in this study and your decision whether to take part or not will not affect your treatment in any way. If you do decide to take part, you can withdraw from the study at any time.***

***All information that you provide will remain confidential and you do not need to give your name.***

#### **What happens to the findings?**

The findings from the research will be written up as a research project and may be published in an academic journal.

Thank you very much for your help.

Jenny McGillion, Research Project Co-ordinator  
Sub-Dept of Clinical Health Psychology  
1-19 Torrington Place  
London, WC1E 6BT

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E mail: [mcgillion@hotmail.com](mailto:mcgillion@hotmail.com)

**APPENDIX 3**

**PATIENT CONSENT FORM**

## **Consent Form**

***Title of study***

An investigation into the significance of anger targets in chronic facial pain

***Investigators***

- Jenny McGillion, Clinical Psychologist in Training
- Dr Toby Newton-John, Consultant Clinical Psychologist

***To be completed by the participant***

***Circle as necessary***

- |   |        |
|---|--------|
| I have read the information sheet about this study  | Yes/No |
| I have had the opportunity to ask questions about the study   | Yes/No |
| I have received satisfactory answers to any questions I may have asked  | Yes/No |
| I have received sufficient information about this study   | Yes/No |
| I understand that I am free to withdraw from this study:-<br>- at any time<br>- without having to give a reason for withdrawing<br>- without affecting my future care | Yes/No |
| I agree to take part in this study  | Yes/No |

Signed ..... Date .....

Name in block letters .....

Signature of clinician .....

**APPENDIX 4**

**DEMOGRAPHICS QUESTIONNAIRE**

*Chronic Facial Pain Study – Patient Details*

1. **Your age (in years)** .....
2. **Sex**  
Male   
Female
3. **How would you describe your ethnic origin?**  
White  Asian   
Black/Afrocaribbean  Other (please specify) .....
4. **Do you live with:**  
A partner  Children   
Friend(s)  Alone
5. **Are you presently:**  
In full-time employment  Retired   
In part-time employment  Permanent sick/disabled   
A housewife  Not working   
A student
6. **How long have you had your facial pain problem?**  
.....weeks/months/years (please circle as appropriate)
7. **Which would best describe your pain:**  
Continuous (present all the time)   
Episodic (occasionally have pain-free periods)
8. **Can you relate the onset of your pain to any specific experience/event?**  
Yes   
No   
If yes, please give details .....
9. **How many different doctors have you seen for your facial pain?** .....
10. **How many operations have you had for your facial pain? (including tooth extractions to relieve pain)** .....
11. **Prior to this hospital, have you ever been referred to a psychologist, psychiatrist or counsellor for your facial pain?**  
Yes (please give details)  .....
12. **Are you currently taking any medication for your facial pain?**  
Yes (please list)  .....
13. **Do you suffer from any other serious health problems?**  
Yes (please describe)  .....

*Thank you for your help*

**APPENDIX 5**

**PAIN QUESTIONNAIRE**

PAIN QUESTIONNAIRE

Name..... Date.....

Thank you for agreeing to complete this questionnaire.  
If you have any difficulty with the questions please do not  
hesitate to ask for help.

1. On a scale of 0-100 where 0 means 'no pain'  
and 100 means 'pain as intense as could be'

please indicate in the spaces below the number between 0  
and 100 that best describes your pain.

(a) How intense is your pain RIGHT NOW ? .....

(b) How intense was your pain ON AVERAGE LAST WEEK? .....

2. On a scale of 0-100 where 0 means 'not at all distressing'  
and 100 means 'pain as distressing as it  
could be',

please indicate in the spaces below the number between 0 and  
100 that best describes how distressing your pain is.

(a) How distressing is your pain RIGHT NOW ? .....

(b) How distressing was your pain ON AVERAGE LAST WEEK? .....

3. On a scale of 0-100 where 0 means 'not at all disrupted'  
and 100 means 'completely disrupted',

please indicate in the space below the number between 0 and  
100 that best describes how much your pain disrupted your  
normal activities last week.

How disrupted were your normal activities LAST WEEK? .....

**APPENDIX 6**

**PAIN DISABILITY INDEX  
(POLLARD, 1984)**

*Pain Disability Index*

The rating scales below are designed to measure the degree to which several aspects of your life are presently disrupted by chronic pain. In other words, we would like to know how much your pain is preventing you from doing what you would normally do, or from doing it as well as you normally would. Respond to each category by indicating the *overall* impact of pain in your life, not just when the pain is at its worst.

For each of the 7 categories of life activity listed, please circle the number on the scale which describes the level of disability you typically experience. A score of 0 means no disability at all, and a score of 10 signifies that all of the activities in which you would normally be involved have been totally disrupted or prevented by your pain.

(1) *Family / home responsibilities*

This category refers to activities related to the home or family. It includes chores or duties performed around the house (e.g. yard work) and errands or favours for other family members (e.g. driving the children to school).

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

(2) *Recreation*

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

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

(3) *Social activity*

This category refers to activities which involve participation with friends and acquaintances other than family members. It includes parties, theatre concerts, dining out and other social functions.

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

(4) *Occupation*

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

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

P.T.O

(5) *Sexual behaviour*

This category refers to the frequency and quality of one's sex life.

0	1	2	3	4	5	6	7	8	9	10
<hr/>										
no disability										total disability

(6) *Self-care*

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

0	1	2	3	4	5	6	7	8	9	10
<hr/>										
no disability										total disability

(7) *Life-support activity*

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

0	1	2	3	4	5	6	7	8	9	10
<hr/>										
no disability										total disability

**APPENDIX 7**

**ORAL HEALTH IMPACT PROFILE  
(SLADE & SPENCER, 1994)**

**ORAL HEALTH IMPACT SCALE (Slade & Spence, 1994).**

**INSTRUCTIONS:** Please answer the following questions by ticking one box for each statement:

<b>How often over the past month have you ...</b>	<b>Never</b>	<b>Hardly ever</b>	<b>Sometimes</b>	<b>Fairly often</b>	<b>Very often</b>
Had trouble pronouncing any words?					
Felt that your sense of taste has worsened?					
Had painful aching in your mouth?					
Found it uncomfortable to eat any foods?					
Been self-conscious?					
Felt tense?					
Found your diet unsatisfactory?					
Had to interrupt meals?					
Found it difficult to relax?					
Been a bit embarrassed?					
Been a bit irritable?					
Had difficulty doing your usual jobs?					
Felt that life in general was less satisfying					
Been totally unable to function?					

**APPENDIX 8**

**THE TARGETS OF ANGER SCALE  
(FERNANDEZ ET AL., 1996)**

TARGETS OF ANGER SCALE (adapted from Fernandez et al., 1996)

**INSTRUCTIONS:** Please indicate how angry you have felt in the past month toward the following:

1. The whole world

0 1 2 3 4 5 6 7 8 9 10  
(Not angry at all) (Extremely angry)

2. Myself

0 1 2 3 4 5 6 7 8 9 10  
(Not angry at all) (Extremely angry)

3. God/destiny

0 1 2 3 4 5 6 7 8 9 10  
(Not angry at all) (Extremely angry)

4. Partner/Friend/  
Family

0 1 2 3 4 5 6 7 8 9 10  
(Not angry at all) (Extremely angry)

5. My employer

0 1 2 3 4 5 6 7 8 9 10  
(Not angry at all) (Extremely angry)

6. Insurance  
company

0 1 2 3 4 5 6 7 8 9 10  
(Not angry at all) (Extremely angry)

7. The legal system

0 1 2 3 4 5 6 7 8 9 10  
(Not angry at all) (Extremely angry)

8. Health-care  
providers

0 1 2 3 4 5 6 7 8 9 10  
(Not angry at all) (Extremely angry)

9. Person who caused  
the injury

0 1 2 3 4 5 6 7 8 9 10  
(Not angry at all) (Extremely angry)

10. My overall level  
of anger

0 1 2 3 4 5 6 7 8 9 10  
(Not angry at all) (Extremely angry)

**APPENDIX 9**

**BECK DEPRESSION INVENTORY  
(BECK ET AL., 1961)**



Date: \_\_\_\_\_

Name: \_\_\_\_\_ Marital Status: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_

Occupation: \_\_\_\_\_ Education: \_\_\_\_\_

This questionnaire consists of 21 groups of statements. After reading each group of statements carefully, circle the number (0, 1, 2 or 3) next to the one statement in each group which best describes the way you have been feeling the past week, including today. If several statements within a group seem to apply equally, circle each one. Be sure to read all the statements in each group before making your choice.

<p>0 I do not feel sad.</p> <p>1 I feel sad.</p> <p>2 I am sad all the time and I can't snap out of it.</p> <p>3 I am so sad or unhappy that I can't stand it.</p> <p>0 I am not particularly discouraged about the future.</p> <p>1 I feel discouraged about the future.</p> <p>2 I feel I have nothing to look forward to.</p> <p>3 I feel that the future is hopeless and that things cannot improve.</p> <p>0 I do not feel like a failure.</p> <p>1 I feel I have failed more than the average person.</p> <p>2 As I look back on my life, all I can see is a lot of failures.</p> <p>3 I feel I am a complete failure as a person.</p> <p>0 I get as much satisfaction out of things as I used to.</p> <p>1 I don't enjoy things the way I used to.</p> <p>2 I don't get real satisfaction out of anything anymore.</p> <p>3 I am dissatisfied or bored with everything.</p> <p>0 I don't feel particularly guilty.</p> <p>1 I feel guilty a good part of the time.</p> <p>2 I feel quite guilty most of the time.</p> <p>3 I feel guilty all of the time.</p> <p>0 I don't feel I am being punished.</p> <p>1 I feel I may be punished.</p> <p>2 I expect to be punished.</p> <p>3 I feel I am being punished.</p> <p>0 I don't feel disappointed in myself.</p> <p>1 I am disappointed in myself.</p> <p>2 I am disgusted with myself.</p> <p>3 I hate myself.</p>	<p>8 0 I don't feel I am any worse than anybody else.</p> <p>1 I am critical of myself for my weaknesses or mistakes.</p> <p>2 I blame myself all the time for my faults.</p> <p>3 I blame myself for everything bad that happens.</p> <p>9 0 I don't have any thoughts of killing myself.</p> <p>1 I have thoughts of killing myself, but I would not carry them out.</p> <p>2 I would like to kill myself.</p> <p>3 I would kill myself if I had the chance.</p> <p>10 0 I don't cry any more than usual.</p> <p>1 I cry more now than I used to.</p> <p>2 I cry all the time now.</p> <p>3 I used to be able to cry, but now I can't cry even though I want to.</p> <p>11 0 I am no more irritated now than I ever am.</p> <p>1 I get annoyed or irritated more easily than I used to.</p> <p>2 I feel irritated all the time now.</p> <p>3 I don't get irritated at all by the things that used to irritate me.</p> <p>12 0 I have not lost interest in other people.</p> <p>1 I am less interested in other people than I used to be.</p> <p>2 I have lost most of my interest in other people.</p> <p>3 I have lost all of my interest in other people.</p> <p>13 0 I make decisions about as well as I ever could.</p> <p>1 I put off making decisions more than I used to.</p> <p>2 I have greater difficulty in making decisions than before.</p> <p>3 I can't make decisions at all anymore.</p>
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Subtotal Page 1

CONTINUED ON BACK

I don't feel I look any worse than I used to.  
 I am worried that I am looking old or unattractive.  
 I feel that there are permanent changes in my appearance that make me look unattractive.  
 I believe that I look ugly.

I can work about as well as before.  
 It takes an extra effort to get started at doing something.  
 I have to push myself very hard to do anything.  
 I can't do any work at all.

I can sleep as well as usual.  
 I don't sleep as well as I used to.  
 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.  
 I wake up several hours earlier than I used to and cannot get back to sleep.

I don't get more tired than usual.  
 I get tired more easily than I used to.  
 I get tired from doing almost anything.  
 I am too tired to do anything.

My appetite is no worse than usual.  
 My appetite is not as good as it used to be.  
 My appetite is much worse now.  
 I have no appetite at all anymore.

- 19**
- 0 I haven't lost much weight, if any, lately.
  - 1 I have lost more than 5 pounds.
  - 2 I have lost more than 10 pounds.
  - 3 I have lost more than 15 pounds.

I am purposely trying to lose weight by eating less. Yes \_\_\_\_\_ No \_\_\_\_\_

- 20**
- 0 I am no more worried about my health than usual.
  - 1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
  - 2 I am very worried about physical problems and it's hard to think of much else.
  - 3 I am so worried about my physical problems that I cannot think about anything else.

- 21**
- 0 I have not noticed any recent change in my interest in sex.
  - 1 I am less interested in sex than I used to be.
  - 2 I am much less interested in sex now.
  - 3 I have lost interest in sex completely.

\_\_\_\_\_ Subtotal Page 2

\_\_\_\_\_ Subtotal Page 1

\_\_\_\_\_ Total Score

**APPENDIX 10**

**INTERVIEW QUESTIONS**

*Qualitative Interview for Targets of Anger in Facial Pain Study*

Inclusion criterion: subjects scoring 4 or more on overall level of anger scale (based on mean from Turk and Okifuji paper)

**Introduction:**

"Thank you for agreeing to help me with this study. My name is Jenny McGillion and I am a trainee clinical psychologist at University College London. This research is looking at the experience of anger in people suffering from chronic facial pain. We hope that the information obtained from this research will improve our management of this condition. I would like to remind you that all the information you give to me is completely confidential, and will not be shared with anyone else including the clinical staff at this hospital. Do you have any questions before we begin?"

1. **Firstly thinking about life before the pain problem started, would you have considered yourself to have been an angry person?"**

Taking each target separately:

**"I would like to ask you about your anger in relation to....."**

2. **Could you tell me some of the reasons why you feel angry towards ..... in relation to your pain?**

3. **How long have you felt angry towards .....? (if needed) Did it start immediately the pain started, or build up over several months, or happen only recently?**

4. **How has feeling angry about ..... affected you (if needed) Has it affected the pain/your relationships/your work/your social life**

5. **How do you deal with this anger, how do you manage it?**

6. **What would help you to feel less angry with ..... in relation to your pain?**