

PAIN: PSYCHOLOGICAL MEASUREMENT AND TREATMENT

by

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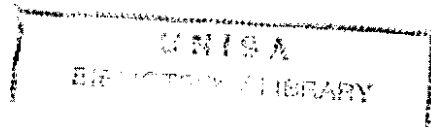
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Declaration

"I declare that Pain: Psychological Measurement and Treatment is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references."

Esther Margaret Queenie Mokhuane
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ABSTRACT

This research was executed as three separate studies. Study 1 focused on the perception of pain and the semantic aspects of pain. Study 2 focused on the measurement of acute pain and mood states. Study 3 focused on the psychological treatment of cancer pain.

In Study 1 a group of 66 Setswana-speaking adults were required to describe what they saw, what happened, and what would be the outcome with respect to three visually presented pain scenes using The Pain Apperception Test (PAT). A qualitative analysis of their responses shows that pain is experienced as an all encompassing experience affecting all aspects of their lives, such as the physical, emotional, social, and economic. This was found to be true, irrespective of gender and age with the exception of economic issues.

A qualitative analysis of their responses to the Pain Eliciting Incidents Questionnaire (PEIQ) reveals that the Setswana pain descriptors are classifiable according to the three dimensions of pain namely, the sensory-discriminative, affective-motivational, and cognitive-evaluative.

Study 2 applied the Profile of Mood States (POMS) pre-operatively to a group of 58 female laparotomy (gynaecological) patients. These patients were also tested post-operatively with the Visual Analogue Scale (VAS) and the Wisconsin Brief Pain Questionnaire (WBPQ) as pain measures. The pain measures were taken at no medication and at the peak of medication. Factor analysis could not

confirm the validity of the six POMS scales. These scales also did not show correlations with post-operative pain. Correlations between the pain measures showed acceptable reliability and validity of the VAS and the WBPQ.

In Study 3 three groups of 15 cancer patients each, suffering from chronic pain, were treated over a period of two weeks with either cognitive behavioural therapy plus medication, reassurance therapy plus medication, or medication only. Comparison of before and after treatment pain measures showed that both cognitive behavioural therapy and reassurance therapy had a beneficial effect. Follow-up results three months later showed that the beneficial effect of reassurance therapy did not persist. Patients treated with cognitive behavioral therapy still showed the beneficial effects thereof.

KEY TERMS

Pain perception

Pain language; pain vocabulary; pain descriptors

Pain measurement

Pain measurement instruments

Mood states accompanying pain

Psychological treatment of pain

Cognitive behavioural therapy for pain in an African population of patients suffering from cancer

Cross cultural issues in pain research; measuring pain in an African population

Culture and pain; South Africa/Batswana

CHAPTER 1

INTRODUCTION

Why would a psychologist be interested in the study of pain? Is pain not a physiological phenomenon? These are the questions often encountered by non-medical professionals when they venture into a field of study which is commonly regarded as of direct relevance only to medicine.

Psychology is currently an integral part of modern health care delivery systems in most Western countries. This trend is reflected in general hospitals and medical schools by the appearance of new programmes with labels such as "holistic medicine, behavioural medicine and environmental medicine" (Bakal, 1979, p.1). Another more recent programme is health psychology. Physicians, nurses, physiotherapists, and medical students are now looking to psychology for concepts and techniques that will enhance their understanding of health and illness.

The growing importance of psychology in health care systems exerts pressure on psychologists to expand their theoretical and practical knowledge of health and ill-health and to explore further the interdependence of psychological, social, and physiological factors as determinants of health and disease. Successful management of pain is enhanced by an understanding and appreciation of the interdependence of these factors.

Pain is a symptom commonly encountered in individuals seeking health care, and it is consequently an important concept for psychologists. This is especially so for psychologists who are team members of the health care team. A person with pain may be encountered in any clinical setting

and the psychologist may be called upon to offer his or her expertise. It is therefore necessary for psychologists to develop skills to assist the person experiencing pain.

Much of the impetus for research on the experience of pain has been provided by Beecher (1956). Major contributions to the theoretical conceptualisation of pain as well as to the development of innovative treatments for chronic pain have been made by psychologists (Fordyce, 1976; Melzack & Casey, 1968; Sternbach, 1974; Turk, Meichenbaum & Genest, 1983).

1. **Semantic and Affective Aspects of Pain**

The impetus for this research arose from working with patients in a general hospital. They frequently experienced pain but had difficulties when they were required to describe it. The question arose whether these patients lacked a vocabulary of pain or were merely reluctant to verbalise it, or perhaps lacked the ability to articulate the pain.

Clinical pain has its own language which describes its quality and intensity. For example, words like "tearing pain" describe the quality, and phrases like "excruciating" describe intensity. Individuals may use particular phrases such as "my tummy is tearing apart" to describe states that are familiar to themselves and others or may use phrases like "my back feels encased" to describe feelings familiar to themselves. Therefore pain language is an important diagnostic tool which we need to familiarise ourselves with to understand the presence of pain and its quality.

The majority of patients seemed to be unhappy, sad, and irritable during their stay in hospital. The researcher wondered if these feelings were due to hospitalisation or to pain? If they were due to the former, what were some of the

emotions and feelings which could be expected as a consequence of pain?

The literature abounds with evidence that acute and chronic pain produce identifiable affective states (Green & Green, 1984; Kent, 1984; Schumacher & Velden, 1984; Weisenberg, Aviram & Wold, 1984). Some of the emotions and feelings which may be expected as a consequence of pain are anxiety, depression, anger, irritability, and fear. Pre-operative anxiety has its roots in the patients' anticipation of pain during surgical procedures. These negative moods (anxiety, depression, fear, anger, and irritability) may have a detrimental effect on the patients' abilities to cope with pain or increase the perception of pain.

What influences the behaviour of a person experiencing pain? Does each person respond according to a predetermined set? The personality of the individual also plays an important part in pain perception. There is evidence that pain tolerance may be related to extroversion and introversion with the latter having greater sensitivity to pain (Engel, 1976), for example, studies of pain in childbirth indicate that introverted mothers feel pain sooner and more intensely but complain less (Kim & Morris, 1982).

The individual's psychological state at the time of pain plays a great part in determining its perceived severity. Anxiety can reduce pain tolerance which means that pain tends to be felt earlier and more intensely and has a greater effect on behaviour (Bond & Pearson, 1969). Thus, as part of a general understanding of the nature of pain, it is necessary to examine the individual's personality and mood.

The individual's age and previous experience can affect the nature of the response to pain. Studies by Banks, Beresford, Morrel, Waller and Watkins (1975) indicate that the patient's age and previous experience affect the nature of the

response, and that children's perception of pain changes with their cognitive and emotional development. Thus the effects of pain in old age can be quite different from its effects on a younger person.

Studies have reported that cultural, demographic, experiential, and situational factors mediate perceived pain (Woodrow, Friedman & Sigelaub, 1972). The frequency of pain complaints in a clinical setting has been related to socio-economic status, the number of previous pain experiences, or exposure to family members with similar experiences, family size and marital adjustment (Seers, 1987). Some of the above variables were noted also by the researcher as factors influencing the patient's pain experience.

Pain may have a greater or lesser impact on the individual, depending on the particular social context in which it occurs. It may be perceived quite unfavourably if it occurs at a time when it is likely to be inconvenient, such as when starting a new job. Alternatively, in some situations it can be accepted gratefully as a relief from an adverse social situation. In a frequently cited study it was found that the request for pain relief among soldiers who had received war wounds, was much lower than that of a civilian group with equivalent injuries (Beecher, 1959).

Thus the psychological impact of tissue damage sustained within the context of the battlefield, can be quite different from equivalent damage sustained in a situation not normally associated with injuries.

The prevailing mores and beliefs with regard to pain are embedded in culture. Ross (1981) describes culture as "*an integrated system of learned patterns of behaviours, ideas and products characteristic of society*" (p.14). Thus, culture may to a large extent influence the individual's expression of pain as well as tolerance. Therefore, pain tolerance may be

seen as a learned component of culture. The reported effect of gender on pain may be the result of response bias to pain stimuli rather than actual differences in the way men and women sense pain.

The pain experience depends in part on information processing and cognitive interpretations of the uncomfortable sensations. Leventhal, Nerenz and Steele (1984) proposed a theory of information processing whereby they conceptualise that individuals perceive and interpret pain by deriving an internal representation of the problem and their subsequent behaviour depends on the nature of the representation. Thus the individuals' own appraisal of the threats associated with pain determines how they feel and the way in which they cope. Here again the perceived significance of pain for the individual can be a prime determinant of any subsequent psychological reaction.

Pain is associated with incapacitation, decreased functioning, and decreased quality of life (Spross, 1985; Timmerman & Sternbach, 1976). Patients in chronic pain are usually immobilised by their symptoms, as the pain affects their daily activities, relationships, sleep, mood, and functional ability. Thus pain may affect an individual in many ways and require different sorts of adaptation.

2. Pain Intervention through the Use of Pharmacological Substances

Aronoff (1992) informs us that pain relief has been the objective of the medical profession throughout the history of Western medicine. Various pharmacological substances have been shown to control pain. These will be discussed more fully in the chapters that follow.

Oral codeine, parenteral meperidine (Demerol), and morphine are probably the most frequently prescribed narcotics and our discussion is limited to these three drugs. Codeine acts on the peripheral nervous system to block the transmission of pain, while narcotics probably produce analgesia by acting on the central nervous system. Meperidine is an acceptable parenteral alternative to morphine. In treating acute pain, meperidine's quicker onset of action (usually within 10 minutes after subcutaneous or intramuscular injection) gives it a distinct advantage over morphine (McCaffery & Hart 1980). These two authors indicate that an oral dose of morphine is only about one sixth to one fifteenth as effective as an injection. Orally meperidine is about one fourth as effective as parenteral meperidine and is less reliable in its effects. What we gather from this is that the route of administration of a drug has a bearing on its effectiveness.

The right dose is also important for pain relief. Undertreatment with these afore-mentioned drugs occurs most commonly because the dose is too small. Some individuals require considerably more than the usual dose to experience pain relief. On the other hand, some individual's pain is relieved by a lower than usual dose.

The undertreatment of pain may also involve unreasonably long intervals between doses. It is recommended that doses of analgesics and intervals between them be determined by the individual's response. If a dose does not produce adequate pain relief, generally the dose should be raised. If it relieves pain for periods shorter than the prescribed interval, the interval probably should be shortened.

One reason for withholding codeine analgesics is fear of depressing respiration, with death as a possible consequence.

Furthermore, codeine analgesics have side effects in the form of nausea and vomiting.

Drug tolerance and physical dependence could also occur after repeated administration. Drug tolerance exists when a particular dose loses its effectiveness, that is when the desired effects can be obtained only by increasing the dose, the frequency or both.

Taking the above into consideration, one gains an impression that for drug treatment to be effective and successful, one needs a broader understanding of the individual and the effects of the given drugs.

3. **Placebo Effects**

Any medication is thought to have a "placebo" component in that some of its effectiveness is due to the expectations of the individual in addition to its chemical properties.

According to Nicollis (1984) many pain killing medications, including morphine, have a placebo component. How a placebo effect works is not really understood. However, there are claims that it may be caused by natural opiates in the brain. Also there is considerable variability in the placebo response in the same individual in different treatment situations. Some of the variability reflects expectations which are aroused by the treatment, the behaviour of the medical practitioner, the mode of administration, and appearance of the medication.

An awareness of these phenomena is of vital importance in evaluating the effectiveness of any treatment including pharmacological agents and psychological treatments.

4. **Physical Therapy**

Other traditional methods of pain relief generally encompass such treatments as bedrest, nerve block surgery, and physical therapy. According to Aronoff (1992), these treatment modalities have been successful in the treatment of acute pain but they play a more limited role in the treatment of chronic non-malignant pain. The goals of physical therapy are threefold:

- (a) To determine the most effective means of decreasing or controlling pain. This may include the use of cold, heat and transcutaneous nerve stimulation (TENS), as well as soft tissue massage and exercise.
- (b) To correct as much as possible the dysfunctions causing the pain. This usually involves techniques to normalise muscle tone, restore proper muscle length and strength and mobilise joints to regain functional movement in the spine and extremities.
- (c) To restore the individual's confidence in the ability to move and enjoy physical activity with reduced fear of further pain.

5. **Pain Control and the Role of Psychologists**

From the foregoing discussion the treatment of pain is seen to be body centred. An important development during the last two decades has been a growing awareness that pain is a psychological as much as a biological phenomenon and that it is unwise to treat pain within a biomedical context only.

There are many findings which highlight the role of various psychological factors in pain perception (Beecher,

1957). Pain is distressing to the individual and can be alleviated better when methods regulating the emotions, promoting altered meanings of pain, and endorsing new behavioural skills are used with drugs. Psychological techniques for pain management are briefly mentioned here to give us a perspective on why psychologists are involved in pain relief. The psychological approaches to pain relief are dealt with in more detail in later chapters.

Many of the psychological approaches for the alleviation of pain involve anxiety reduction because of the interrelationship between anxiety and pain in both acute and chronic pain. Patients are taught to use a variety of anxiety and stress-reducing techniques such as relaxation, self-hypnosis, and biofeedback, as well as a variety of cognitive coping strategies. Cognitive strategies are aimed at assisting the patient to gain control over the pain or alleviate the affective distress associated with pain. The use of relaxation in pain control is based on its effects in decreasing anxiety and muscle tension.

Breathing techniques, autogenic phrases, and distraction have been used as coping strategies. The distraction selected serves as a focus of concentration powerful enough to overcome preoccupation with pain. Researchers are beginning to realise that the use of these techniques actually stimulates the body's own pain relieving chemicals, called endorphins, which are involved in the regulation of mood and affect (Bunney, 1979).

The pain experience depends in part on information processing and cognitive interpretations of the uncomfortable sensations. Psychological interventions directed at patients' cognitive skills have been found to be effective in modifying pain. Ward, et al. (1982, 1984) have demonstrated the effects of information sharing, distraction techniques, guided

imagery, suggestion, relaxation techniques, and reassurance techniques on pain tolerance. Increasingly, these interventions are being implemented in overseas countries and even locally.

Other attempts to change pain behaviour are based on the principles of operant conditioning. Simply, these aim to reduce pain behaviour (e.g., complaining) and increase well behaviours (e.g., physical activity) by systematically using social responses like praise (Weiman 1987).

A somewhat specific variation for reducing stress-related pain is based on biofeedback which makes use of monitoring equipment to feed back to the individual the level of activity of a physiological process, for example, brain wave activity or localised muscle activity. Most of the work on biofeedback for pain control has been for the treatment of headache (Turner & Chapman, 1982a).

These two investigators have shown that biofeedback can be effective in reducing headaches, but that this effect is a non-specific one due to the effect of relaxation rather than biofeedback *per se*.

Finally, it is also worth mentioning the interventions used with individuals undergoing surgery. These interventions may consist of either supplying preparatory information about the various medical procedures and the likely types of postoperative sensations including pain that the individual may expect (Janis, 1958) or providing the individual with a way of coping with the pain (Lazarus, 1976). Such strategies may serve a protective function and may enable an individual to maintain a reasonable equilibrium through a difficult period.

At this point, mention of the role of psychologists is necessary considering that numerous biopsychosocial factors have been implied in pain perception and these may require

intervention by psychologists or other mental health workers. Generally the psychological treatment is directed to the overall impact of pain on the individual's life. According to Aronoff and McAlary (1992), it may include the following:

- (a) Psychosocial assessment, including psychological testing, to determine pertinent underlying pre-pain and post-pain psychological problems and coping styles.
- (b) Individual and group psychotherapy
- (c) Psycho-education to address pain problems.
- (d) Family assessment and intervention. The latter is based on the view that pain is a systems problem. Although the individual is defined as the one having the problem, the family either covertly or overtly may complicate his recovery, or be an ally in implementing the treatment plan.

The above strongly points to the importance of psychosocial variables in pain perception and management and the important role psychologists can play in the treatment. A range of psychological procedures exist which vary in their nature and mode of operation, but the unifying theme is that they seek to bring about change by acting on some aspects of a person's overt or covert behaviour. These treatment methods are discussed in more detail in chapter 4.

6. Background to the Research Problem

Most research on pain is carried out in overseas countries, and little pain research has been performed in this country. However, it is essential for South African

psychologists to start contributing effectively to the assessment and management of pain.

Information on the status of pain patients as well as their change in pain status, is of clinical value. The factors to be considered include the intensity, quality, location, and duration of pain, and the effects of pain on their daily functioning and relationships. The task for pain assessors then, is to seek to develop reliable methods for assessing the patients' subjective pain, its nature and its consequences, as well as to plan and establish its treatment. Valid and reliable pain measures can save time for the clinician. Their importance cannot be over-estimated.

According to Houde, Wallenstein and Rogers (1960), an estimate of analgesic effectiveness requires some measure of the presence or absence of pain in the patients under study, both before and after receiving analgesic drugs. These researchers propose that the best source for estimates of pain intensity are the reports of pain patients themselves.

7. Statement of the Problem

The research questions that will be investigated in this study may be stated as follows :

What are the characteristic ways of perceiving, expressing and responding to pain among Setswana speaking individuals?

Is there an effect of gender and age on the perception of and response to pain among Setswana-speaking people?

Do Setswana-speaking people have a vocabulary for pain?

How is it classified?

How reliable and valid are current pain assessments tools when used on Setswana-speaking patients for pain assessment and treatment evaluation studies?

Is pain related to mood state?

What moods accompany pain?

How reliable and valid are current mood assessments when used on Setswana-speaking patients for mood assessment?

Are psychological interventions devised for pain control overseas also effective when applied to Setswana-speaking patients?

How effective are codeine analgesics (Pethidine and Papaveretum) in the treatment of postoperative pain on Setswana-speaking patients?

How effective are codeine analgesics such as Dolorol in the treatment of cancer on Setswana-speaking patients?

8. **Aims of the Study**

The specific objectives of this study are the following:

- (a) To investigate the perception of pain among the Batswanas and to determine whether variables such as age and gender of the person suffering from pain, play an important role in pain perception and responses to pain.
- (b) To investigate and identify the contents of a pain lexicon among the Setswana-speaking population group.
- (c) To assess the reliability and validity of the Wisconsin Pain Questionnaire for Setswana-speaking persons.

- (d) To evaluate the efficacy of cognitive behavioural therapies and reassurance therapy in the treatment of pain in Batswana subjects.
- (e) To explore the moods of the Setswana-speaking pain patients by means of the Profile of Mood States and thereby gain insight into the subjects' anxieties and concerns.
- (f) To test whether the narcotic analgesics Papaveretum and Pethidine relieve postoperative pain in Setswana-speaking patients.
- (g) To test whether Dolorol effectively relieves cancer pain.

Before describing the empirical research performed to achieve these aims, the theoretical background to the study and previous research is discussed in chapters 2 to 5.

CHAPTER 2

THE COMPLEXITIES OF PAIN

Pain is an elusive concept. There is no consensus on what pain is, although many people know what it is to suffer pain. It is not a simple matter to define and quantify pain, because pain is highly complex and people react to it differently. The pain perception threshold, that is, the point at which pain is first felt, has been found to be remarkably similar in most individuals under normal circumstances (Giddon, 1978). However, this threshold may be altered by a person's physical condition or by his emotional state at the time when pain is experienced.

1. The Definition of Pain

Various definitions of pain have been suggested. Noordenbos (1959) regards it as a construct, an unobservable hypothetical variable that forms part of a theory to explain observable behaviour. Zwetnow (1979) defines pain as: "*a subjective sensation and an emotional experience associated with actual or threatening tissue damage*" (p.8). These two definitions already indicate that pain is not only organic in nature, but can also be psychological. Merskey and Spear (1967) define pain as "*an unpleasant experience which we primarily associate with tissue damage or describe in terms of such damage or both*" (p.117). This definition still holds up to the present time. According to Weisenberg (1975) these three definitions of pain (Noordenbos, 1959; Zwetnow, 1979; Merskey & Spear, 1967) offer a number of advantages:

1. They emphasise the association of pain with tissue damage, but avoid the incorrect assumption of a fixed relationship between the two.
2. They do not limit one to search for organic causes of pain, but allow one to view pain as a result of numerous aetiological factors.
3. They lead one away from the narrow focus on surgical and pharmacological treatment methods, towards a broader consideration of other means of pain management.
4. They avoid the artificial and dangerous dichotomy between "real" pain and "psychological" pain.
5. They compel one to recognise that pain is pain, whether its origins lie in a wound, a stressful day at the office, or an unconscious desire to avoid an unpleasant task.

The International Association for the Study of Pain (IASP 1986) defines pain as follows: *Pain is an "unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" (1986, p.9).*

Hoffert (Aronoff, 1992) argues that this definition of pain leads to difficulties in designing testable hypotheses. Firstly, to consider pain a sensory experience, assigns it to a group of attributes associated with sensation and leads logically to a set of hypotheses related to the field of sensation. Secondly, to consider pain an emotional experience, assigns it to a very different set of attributes, associated with emotions. The subjective and private quality of emotions inevitably makes them difficult to describe and investigate. Thirdly, the

phrase "associated with actual or potential tissue damage or described in terms of such damage" produces yet a third set of hypotheses. Finally, the above definition effectively limits experimental paradigms to those utilising awake, communicating human subjects. This severely restricts the kind of experiments that can be done to study pain.

In summary, if one looks at the definitions of pain (Hoffert, 1992; IASP 1986; Merskey & Spear, 1967; Zwetnow, 1979) one finds that they recognise implicitly or explicitly the neurophysiological/organic aspects of pain (tissue damage), but also that pain is a personal and subjective event (unpleasant experience) involving thoughts, perceptions, and emotions.

The above five advantages given by Weisenberg (1975) are succinctly highlighted by Aronoff (1992) who goes further than the previous three investigators (Merskey & Spear, 1967; Noordenbos, 1959; and Zwetnow, 1979) in his most current definition of pain. He defines pain as follows:

a complex, personal, subjective, unpleasant experience involving sensations and perceptions that may or may not be related in any way to injury, illness or bodily trauma. It is influenced by psychological, ethnocultural motivational, as well as biological, physiological, chemical and other factors. (p.417)

1.1 Three Dimensions of Pain

Melzack (1973) points out that pain is much more than a sensory experience. He proposes three dimensions to the pain experience, namely, the sensory-physiological, motivational-

affective, and cognitive-evaluative. According to Melzack (1973), the motivational-affective dimension refers to the unpleasant affective or emotional quality that differentiates pain from other sensations. Hence pain can at times become overwhelming and disruptive of the usual kind of behaviours. The cognitive-evaluative dimension refers to the higher cognitive functions that influence the experience of pain. Included here would be cultural learning, situational variables, as well as social and personality factors.

Melzack (1973) cites considerable clinical evidence to support the notion of a three dimensional model of pain, including congenital insensitivity to pain. Some persons are born without the ability to feel pain. Many of them sustain extensive burns, bruises, and lacerations without experiencing pain. The following criteria are proposed by Melzack for diagnosing congenital insensitivity to pain: the defect must be present from birth, rather than acquired as a secondary manifestation of a disease process or traumatic injury; the insensitivity must apply to all pain stimuli and the entire body; and the remaining somatosensory modalities (touch, warmth, cold, and pressure) must be intact. Studies on congenital insensitivity to pain indicate that there is more to pain than the mere signal of tissue damage or injury, through the stimulation of receptors. The best documented of all cases of congenital insensitivity to pain is cited by Melzack (1973, p.15):

Miss C. was a young Canadian girl who was a student at McGill University in Montreal. Her father, a physician in Western Canada, was fully aware of his daughter's problem and requested his colleagues in Montreal to examine her. She was apparently normal, except that she had never felt pain. As a child she had bitten

off the tip of her tongue while chewing food, had suffered third degree burns after kneeling on a hot radiator. When examined, she reported that she did not feel pain. Further, laboratory studies were conducted on her by psychologists applying noxious stimuli. She reported that she felt no pain when parts of her body were subjected to strong electric shock, to hot water at temperatures that usually produce reports of burning pain, or to a prolonged ice-bath. Equally astonishing was the fact that she showed no changes in blood pressure, heart rate or respiration when the stimuli were presented. She could not remember ever sneezing or coughing, the gag reflex could be elicited only with difficulty and corneal reflexes were absent. A variety of other stimuli, such as inserting a stick up through the nostrils, pinching tension, or injection of histamine under the skin also failed to produce pain whereas with people who are sensitive to pain, all of the above procedures are considered to be torture.

Bakal (1979) quotes Sternbach (1968) who records a similar case of an individual who only experienced pain three times in his life: At the age of 7 he had a headache for a few days after an axe was buried in his skull; at the age of 14 he experienced brief pain when a surgeon probed for a bullet; and at the age of 16 he complained of pain when he received treatment for a broken fibula which, according to him "hurt a little". (p.141) Sternbach (1968) believes that this young man most probably experienced no pain during these accidents: "However, in response to social demands of the situation, the

young man thought it best to indicate some feeling of pain so as not to appear 'crazy' or 'weird' to the attending physician" (p.141).

In contrast to people who are incapable of feeling pain, are those who suffer pain in the absence of any apparent stimulation. An example of this is phantom limb pain. According to Melzack (1973, p.26), "damage of peripheral nerves in the arms or legs, by gunshot wounds or other injuries, is sometimes accompanied by excruciating pain that persists long after the tissues have healed and the nerve fibres have regenerated."

Phantom limb pain may have qualities, for example, it may be described as burning, cramping or shooting. Sometimes the pain is triggered by innocuous stimuli such as gentle touches or even a puff of air. Spontaneous attacks of phantom limb pain may take minutes or hours to subside, but can occur repeatedly each day for years after the injury. The frequency and intensity of these spontaneous pain attacks may increase over the years, and the pain may even spread to distant areas of the body.

A somatic explanation is not easily available for these two syndromes. The source of the disorders can be attributed either to an abnormality in the way in which sensory inputs are processed or to psychological factors. Melzack (1973) believes the problem lies with the physiological mechanisms that mediate the motivational-affective and cognitive-evaluative dimensions of pain. However, the explanation for both phenomena (congenital insensitivity to pain and chronic pain without tissue damage) is still unsatisfactory, as there is no agreement regarding nociception, that is, what actually causes a sensation to be perceived as painful.

It is difficult therefore to determine in a priori terms when pain should and should not be experienced. Normally the ability to perceive pain depends upon the integrity of the nerve fibres which receive, transmit, and interpret pain impulses. However, the cases cited by Melzack (1973) and by Sternbach (1968) show that this is not always the case. The data from these studies emphasise that one must rely primarily upon the individual's own self-report to indicate whether pain is present or absent. The absence of demonstrable organ pathology should not lead one to conclude that the individual does not feel pain.

1.2 Difficulties with the Measurement of Pain

One of the major problems in pain research concerns measurement. Self-report questionnaires/scales such as the Visual Analogue Scale (Huskisson, 1974), the McGill Pain Questionnaire (Melzack, 1975), the Wisconsin Brief Pain Questionnaire (Daut, Cleeland & Flanary, 1983), though widely used, share the fundamental problem that the expression of pain may not correspond well with the sensations of pain (Turk & Rudy, 1986), as the sensations are difficult to quantify. The difficulties with the measurement of pain illustrate the complexity of the phenomenon. Since pain itself is subject to many influences, it is not surprising that measuring techniques are similarly affected. They are affected by cultural and contextual influences, as discussed in the next section.

2. Physical, Emotional and Contextual Influences on Pain

A number of factors have been found to influence pain. These include the physical state of the individual, (e.g., sensory restriction and prolonged loss of sleep), emotional state of the subject (e.g., anxiety, fear, sense of despair) and the situation (context) in which pain occurs.

2.1 Physical Factors

According to Pasquali, Alesi, Arnold and De Basio (1981) people suffering from acute or chronic painful conditions often report that the pain is worse at night. The reason for this is that during the night, the number of incoming stimuli decreases and their type and pattern are altered. The body, according to these authors, "*responds to stimuli of lesser intensity during periods of quiet, such as night time, during the day the number and variety of stimuli bombarding the patient are greater*" (p.155). This implies that during the day a variety of events and activities distract the individual in pain. However, in the quiet hours of the night, there are fewer environmental distractions and attention is focused on the body and pain.

The other factor mentioned by these authors is sleep deprivation, which has been found to have an effect of lowering the adaptive capacities of the patient with the result that a minor stimulation is experienced as intense. For example, a person who has been undergoing a rigorous series of diagnostic tests which may preclude normal sleep, may cry severely following a pin prick for a blood sample.

2.2 Emotional State

The emotional state of the individual can contribute extensively to the experience of pain. Anxiety and fear have been found to aggravate pain. Hill, Kornetsky, Flanary and Wilker (1952), in their studies of anxiety and pain, found that subjects in whom anxiety is low, rate sensations produced by radiant heat and electric shock as less painful than subjects in whom anxiety is high. This is understandable, as anxiety, fear, and pain all provoke the same physiological "alarm reaction" in the body, in response to stimuli that threaten the individual's safety.

2.3 The Context in which Pain Occurs

The meaning of the situation also affects anxiety and pain in important ways. Beecher's (1959) findings classical study of the reactions of wounded soldiers returning from battle during World War II indicated that tissue damage was simply not interpreted as pain. Consequently, he was surprised to find that when the wounded soldiers were taken to combat hospitals, only one third complained of sufficient pain to require morphine. Most of the soldiers either denied having pain from their extensive wounds or had so little that they did not want medication to relieve it. This was in contrast to his civilian surgery practice where over 80% of his surgical patients with comparable wounds inflicted under anaesthesia requested medication to relieve the pain.

According to Beecher (1959) the significance of the wound, rather than the extent of tissue damage, appeared responsible for the difference. For the soldiers, a serious

wound guaranteed a ticket to safety, but for the civilians, surgery was a frightening, disruptive event in their lives.

A similar case is that of a football player who has been injured during a game. He may not notice that he has been hurt until the game is over. In this case, excitement and probably the desire to win, may be so intense as to demand the individual's full attention, with the result that the sensory impressions of pain from the injury may be weakened. Therefore pleasurable emotions have been found to nullify pain so that a person who is in a happy or contented mood does not experience pain to the same extent as a worried person.

Beecher's (1959) findings may be given present day interpretations. There is evidence that pain may induce stress analgesia with the result that the individual in pain adapts to pain (Akil, Madden, Patrick, & Barchas, 1976). This stress analgesia is caused by endorphins, which are endogenous opioid peptides with opiate-like effects. According to Kelly (1982), the time course of stress-induced analgesia may range from minutes to hours. During this period the endorphins inhibit pain-motivated withdrawal behaviour to environmental stress. Stress or exposure to pain may also prompt plasma elevations of B endorphin as well as adrenocorticotropin (ACTH) and corticosterone, thus producing analgesia and inhibiting the transmission of pain impulses. The pain inhibitory systems in the brain will be reviewed in chapter 3.

3. The Influence of Early Learning on the Experience of Pain

As a person becomes acculturated, he learns what the members of his culture expect and accept which regard to his behaviour in general and also with regard to painful experiences. Acculturation in relation to pain begins in early childhood. Reactions to pain have been found to be influenced by the individual's cultural background, family, age, and gender. Several key issues related to the culture and family of individuals are next discussed.

3.1 Cultural Differences

Anthropological studies on cultures and social psychological studies on groups and nations have looked at how various cultures and nations differ in their norms or expectations about how people should perceive and react to different situations. Some norms are prescriptive, that is, there is pressure upon the individual or group to conform to expectations and deviations are met with disapproval. Other norms are descriptive and do not imply obligation to conform, but merely describe the behaviour which is characteristic or typical of a group. In other words, culture constrains and regulates our daily behaviour, attitudes, and values in latent and manifest ways.

Comparative studies on cultural differences in pain reactions and expression (Zborowski, 1969) have found that people of Mediterranean origin, such as Italians and Jews, are apt to report pain earlier than people of European (Irish) and American descent. These two groups (Italians and Jews) were also found by Hardy, Wolff and Goodell (1952) and

Sternbach and Tursky (1965) to tolerate less intense levels of laboratory induced pain. The Americans and the Irish were found to be inhibited in the expression of pain, while the Italians and the Jews were more reactive and thus more expressive.

Zborowski (1969) examined the underlying motives of both the expressive groups (Italians and Jews) and found that their motives were different. The Italians, as a group, were primarily concerned with obtaining relief from pain, while for the Jews, the primary concern was to discover its cause. According to Sternbach and Tursky (1965) and Zborowski (1969), the Americans and the Irish encourage stoic attitudes and inhibit pain behaviour. Therefore, the differences in pain-related behaviour reflect differences in ethnic attitudes towards pain. It would appear that these attitudes towards pain will, in turn, be maintained by the family.

Knowledge of different cultures can teach health psychologists and health professionals that there are ways of responding to pain other than their own, and this knowledge may assist them in distinguishing their own cultural traditions as the basis of assessing the patient's pain experience.

3.2 The Family

The family is an important source of early learning about appropriate behaviour in response to pain, as it is the transmitter of cultural norms. Studies of dental fears in children (Weisenberg, 1977a, 1977b) have shown that the experiences and attitudes of one's family toward dental care are instrumental in determining the person's anxiety about dental treatment. For example, Weisenberg (1977b) found that

children of anxious mothers demonstrated more negative behaviour during a tooth extraction than children of mothers with low anxiety.

Other studies on the role of the family in pain behaviour (Fordyce, 1976; Hardy et al., 1952) indicate that family members serve as examples and models of how pain should be expressed, by their responses to the person in pain. Fordyce (1976) believes that the family may contribute to the maintenance of pain by unwittingly giving support and sympathy or may discourage pain by being unsympathetic. This latter issue is exemplified by teachings such as "Big boys don't cry" (Hardy et al., 1952, p.27). In addition, there are the common occurrences where a young child, while playing with friends, falls and scrapes a knee. If the mother happens to be available, the child may begin to cry and run to his/her mother, seeking comfort. If affection is given, the child may learn that pain can be used to elicit desired behaviours from others. By the time he or she reaches adulthood, these may be very firmly established reactions. Therefore, the health professional must consider the potential influence the family has on the individual's pain experience.

The learned response component to pain has been demonstrated by Melzack and Scott (1957) in a study involving puppies reared in isolation. According to these investigators, puppies reared out of sight and sound of other dogs do not ordinarily avoid painful stimuli such as pin pricks and burning matches to the same extent as puppies reared normally. It has been observed in laboratory studies that puppies reared in isolation, do not show distress, repeatedly stick their paws into a flame, or fail to withdraw from sharp stimuli. Only when severe tissue damage has occurred, do puppies act as if they have learned anything

about pain. Studies on the role of the family in pain behaviour and the work of Melzack and Scott, (1957) on puppies reared in isolation therefore both demonstrate the role of learning in pain behaviour.

4. Gender Differences in Pain Behaviour

A great deal of research has compared the pain behaviour of males and females, especially that of Americans (Guttentag & Secord, 1982; MacCoby & Jacklin, 1984; Symons, 1979). Early discussions often asked whether gender differences were caused by "nature or nurture," that is by biology or learning. This perspective of gender differences has been carried over into the study of pain. The results of these studies on pain and gender differences in response to pain are often contradictory and sometimes confusing. A full explanation of gender differences must consider both the biological characteristics of the males and females and the social environment in which males and females live.

Anthropological studies (Schapera, 1976) on gender differences in Batswana and Northern Sesotho ethnic groups emphasise the social environment and cultural values, and neglect biological factors. A review of the theoretical perspectives on gender differences is presented below. Three broad perspectives emphasise the influence of biology, of learning, and social roles and stereotypes. Gender differences are undoubtedly affected by biology. Physical differences in the ability to bear children and to breastfeed them and differences in size, and so on, are obvious. Learning plays an important role through processes such as modelling and reinforcement. Role theory provides support

for the influence and effects of group norms and values on gender differences in behaviour.

4.1 Biological Influences

Symons (1979) outlines a socio-biological analysis of gender differences. He looks to inheritance and the process of evolution for the causes of many gender differences. Symons argues that humans have evolved in ways that maximise the likelihood of their individual genes being passed on to offspring and thus "surviving" (p.79) in future generations. Whereas men produce many sperms, women typically produce only one egg per month and then must invest time and energy in pregnancy and nursing a baby. As a result, the reproductive strategies for the two sexes differ. For men, the survival of one's genes (reproductive success) is enhanced by impregnating as many women as possible and investing little time and energy in the rearing of any one child. Hence men are biologically disposed to have many sexual partners and limited contact with infants. In contrast, for women reproductive success depends on maximising the chances that the few children a woman can produce will survive to maturity. Women are therefore disposed to be involved in the care of infants and so seek a long-term relationship with a man who can also contribute to the development of their children.

Symons (1979) believes that males and females have distinctive genetically based dispositions. He recognises, however, that whether such dispositions are translated into gender differences in actual behaviour depends greatly on the environment. The sociobiological perspective is quite controversial, but it provides an example of how biological

factors might influence gender differences in attitudes and behaviour. The point socio-biologists emphasise is that the basic biological differences can be largely increased or reduced by social forces. For example, Guttentag and Secord (1982) cite sex differences in physical size and strength as having given males a clear-cut advantage over females in warfare. However, with modern technology and push-button weapons, brute force is less important for soldiers of either gender. Childbirth provides another illustration of the interplay of biology and society. For example, contemporary women outlive men by several years, but in colonial days when women had many children and childbirth was hazardous, the situation was reversed. Men lived longer than women. Thus, the impact of biological differences can vary dramatically depending on the social environment.

4.2 Gender Differences and Learning

Society has different expectations and standards for the behaviour of males and females. MacCoby and Jacklin (1984) emphasise ways in which society shapes behaviour, through such processes as reinforcement and modelling. An example will highlight the influence of learning. Imagine a father whose young daughter enters the living room dressed in Mummy's earrings and high heeled shoes (modelling), and climbs on Daddy's knee. The father is likely to smile at his daughter and give her a hug (reinforcement) on being such a pretty girl. Now imagine that a four-year old boy were to do exactly the same thing. One would assume that his father would communicate firmly that feminine clothes are not appropriate for boys, thus discouraging the future occurrence of such behaviour through punishment or ignoring the

behaviour in question. Through the processes of modelling, reinforcement, and punishment, people may acquire stable characteristics linked to gender. An offshoot of this perspective deals with role conceptions of persons and stereotypes.

4.3 Social Roles and Gender Stereotypes

According to Thomas (1988), a social role is the "set of expectations that defines what the behaviour of a person occupying a given position in a social system should be" (p.149). For example, in a work situation there may be such positions as a doctor, nurse, labourer, and superintendent. Associated with these various positions are expectations for particular behaviours. One does not expect the superintendent to sweep the floors of the hospital wards. This particular behaviour falls outside the set of role expectations that are associated with the position of superintendent. In other words, role defines acceptable conduct. The psychology of roles is also linked to gender. There are different behaviour codes for boys and girls, sons and daughters, husbands and wives. These behaviour codes also apply to the Setswana-speaking group. The result, according to MacCoby and Jacklin (1987), is that males and females acquire "different attitudes, interests, skills and personality traits based on the gender-linked roles in their society" (p.207). From daily observations of people, it is clear that women differ significantly from each other, just as men are a varied group. These differences between the sexes and the differences in the behaviours of young and old, sons and daughters, wives and mothers, husbands and fathers,

doctors and nurses are also explained by the differences in the social context in which behaviour occurs.

4.4 Social Roles and Gender Stereotypes among the Batswana

Schapera (1976), in his study of the Setswana-speaking group, presents the traditional gender roles organised around two basic principles. The first is that men and women perform distinct activities. Men are primarily seen as hunters and women hoe the fields and perform domestic chores, like cooking, other types of housework, and child rearing. The second idea is that men are the dominant sex, and women are minors. Men are portrayed as experts and leaders in cultural affairs as well as in domestic affairs. Schapera (1976) writes: *"man is the undisputed head of the family. His wife must accept him as her leader, support and obey him"* (p.135).

The researcher's personal observations are that in recent years there has been much evidence that the traditional rigid distinctions between what men should do and what women should do, are breaking down. During this century, the Setswana-speaking group, like other African groups, have experienced the influence of rapid urbanisation. Women have increasingly come to take up jobs outside the home and to do things formerly considered for men only. Women have begun to enter occupations such as law, medicine, and engineering and have made gains in higher education. These changes are of great personal and social significance. However, cultural stereotypes, that is, societal images of the sexes, still persist. The labelling of people, things, and activities as masculine and feminine still exists. In this regard Sears, Freedman and Peplau (1985) write : "One

problem with gender stereotypes is that they can bias evaluations of the performance of individual men and women" (p.455). It would appear that these cultural stereotypes and biases about the sexes commonly occur in health psychology.

5. Empirical Evidence for the Effects of Age, Gender and Cultural Stereotypes on Pain

Several studies (Baer, Davitz & Lieb, 1970; Gaston-Johansson & Asklund-Gustafsson, 1985; Lenberg, Glass & Davitz, 1970; McCaffery, 1979a; Winsberg & Greelick, 1967) have shown that health professionals are influenced by the patient's age, sex, and cultural background when assessing pain. These investigators found, for example, that staff assessed less pain in persons from a different cultural background than their own. Studies on age and sex differences in pain behaviour are inconclusive, although investigators like Morrison (1976), Pilowsky and Bond (1969), and Sternbach and Tursky (1965) have empirically demonstrated that tolerance and acceptance of pain are low among women as compared to men. According to these investigators, folklore states that women are fragile and sensitive. Men are tougher than women and can endure more pain. Health professionals seem to have been influenced by these stereotypes.

Nurses have been shown to infer more pain in female patients than male patients (Davitz, Sameshima & Davitz, 1976; Goodman, 1973; Loan & Morrison, 1967), even though the males reported more severe pain and asked for pain-relieving medications more often. For example, research on post-operative pain (Loan & Morrison, 1967) has shown that among post-operative patients, women are likely to be given

drugs earlier than men. Pilowsky and Bond (1969) have found that men must complain more than women about pain before being given pain medication.

At first glance, laboratory studies on pain would seem to support this notion. Studies on pain tolerance (Clark & Hunt, 1971; Corah, 1978; Sternbach & Tursky, 1965) have found that men are willing to tolerate more pain than women. However, an equal number of studies (Clark & Bindra, 1956; Giddon, 1978) have demonstrated that when pain threshold (the point at which the person reports feeling pain) is used as a measure, men and women do not differ.

Further studies by Clark and Hunt (1971), and by Corah (1978), indicate that older persons complain more about the same amount of stimulation than do children. It would seem from these studies that tolerance has to do with physical, physiological, and cultural factors, including learning. However, Dworkin, Ferrence and Giddon (1988) report that the low tolerance observed by them in middle-aged persons with intact nervous system functioning could be due to learning rather than changes in physiological functioning. Mather and Mackie (1983) reported in one study that many of the children surveyed soon after surgery had received too little pain medication. The children became withdrawn as a method of coping with pain. Davitz et al. (1976) reported that nurses from six different cultures reported less pain in children than in adults. Studies on age and sex differences in pain reaction therefore do not reveal a clear relationship.

Though the cited research reports lower pain tolerance among women than men, Clark and Bindra (1956) claim that these differences, when they exist, reflect a reaction bias on the part of women to report pain sooner than men. Learning may also be related to differences in pain behaviour between younger and older persons. Little girls learn that

crying about a grazed or bruised knee often brings sympathy and comfort from others, while little boys are told and encouraged to "act like men" and "only babies cry" (Dworkin et al., 1988, p.192).

A number of investigators (Gaston-Johansson, 1984; Lenburg, Burnside & Davitz, 1970; McCaffery, 1979) have implied that the nature of education of doctors and nurses and the number of years they worked in a health care setting, may cause a decreased sensitivity to the pain of others. It has been reported that second year nursing students inferred less pain in patients than first year nursing students (Lenburg, et al. 1970), and that nurses with five years and more experience in the health care system tended to rate the intensity of the concepts "pain", "ache" and "hurt" lower than nurses with less experience (Gaston-Johansson, 1984, p.26).

6. Conclusion

All the studies reviewed here were carried out in foreign countries, except the anthropological work of Schapera (1976) on the Batswanas. South African health professionals are still grappling with other health issues and there is at present minimal attention to the assessment of pain.

For this reason much local research is still needed in this area. The neurophysiological aspects of pain are reviewed in the next chapter.

CHAPTER 3

THEORIES AND APPROACHES TO PAIN

1. Neurophysiological Theories of Pain

There are three broad neurophysiological theories of pain. They are the specificity theory, pattern theory, and gate-control theory.

1.1 Specificity Theory

The specificity theory is the classical view expounded by Muller (1978) and Von Frey (1894/1975). This theory proposes that there are specific receptors for pain (free nerve endings), specific pain fibres (A-delta and C), specific tracts to the brain (lateral spinothalamic), and a pain centre in the brain (posterior nuclear group in the thalamus and cortex), where pain is registered, appreciated, and interpreted. According to Bonica (1980), Von Frey also expanded Muller's concept of the sense of touch to four major cutaneous modalities: touch, warmth, cold, and pain. Von Frey's theory (1894), which dealt only with receptors, prompted his contemporaries to believe that pain was subserved by specific fibres from the receptors to the spinal cord and specific pain pathways in the neuraxis. This led to experiments being carried out on peripheral nerves to show that there is a "one to one" relationship between receptor type, fibre size, and quality of the pain experience (Bonica, 1980).

Bonica (1980) adds that the results of experiments carried out with animals suggested that the anterolateral quadrant of the spinal cord was critically important for pain sensation, a concept reinforced by Spiller's (1905) observations of the location within the spinal cord of the fibres for temperature and pain sensations.

The specificity theory implies that a particular pain stimulus will always cause the same pain. This is a shortcoming in the area of clinical pain. Hill et al. (1952) have shown that subjects experiencing experimentally induced anxiety feel electric shock or burning heat to be severely painful. Reduction of the anxiety results in lowered intensity of perceived pain. This observation demonstrates clearly that psychological factors can and do have a profound influence on the perception of and response to pain. Thus, with the pain stimulus constant, the pain response varies.

However, the specificity theory correctly recognises that some receptors respond only to specific kinds and amounts of stimulus energy. For example, a quick light stab of the skin results in an immediate short light flash of pain which disappears, and after a brief interval, is followed by a pain which lasts longer and is more intense. According to Bonica (1980), the experimental evidence demonstrates that the double pain response is due to transmission of impulses in two sets of nerve fibres which have different velocities of conduction and which are of two types, *"one mediating impulses which give rise to the sensation of prickling pain, and the other mediating impulses which reach the sensorium slowly and give rise to the sensation of burning pain"* (p.23).

According to Perl (1984) the above phenomena are commonly described as *"first and second" pain* (p.23).

1.2 Pattern Theory

This theory was proposed by Goldschneider in 1894 (Perl, 1984), who viewed the determinants of pain as stimulus intensity and central summation. Perl quotes several researchers (Hebb, 1975; Iggo, 1959, 1960; Lele & Waddell, 1959; Nafe, 1975) who have supported the pattern theory of pain. Their theory dismisses the notion that the brain has a single area for the perception of pain. According to Bonica (1980), this theory proposes instead that pain depends on the amount of neuronal activity, that is, the pattern of firing of neurons in the brain. Neuronal activity is always taking place in the brain, but according to this theory "pain is experienced when this activity reaches a particularly high level or threshold" (Bonica, 1980, p.6). The key issue in this theory is that as long as stimulation is intense (a deafening noise, blinding light, scalding water), the stimulus need not be specific to any one sensory modality or to any one area in the brain in order to produce pain. An advantage of the pattern theory is its emphasis that the central nervous system reacts as a whole to stimuli, which makes a coordinated response to pain possible.

Another pattern theory proposed by Noordenbos (1959) suggests that central summation may be prevented by the action of rapidly conducting fibres inhibiting transmission by slow conducting fibres. The central issue in Noordenbos's proposal is that information carried in thick unmyelinated nerve fibres, which are fast conducting, can lead to suppression of pain impulses in the thin myelinated and unmyelinated nerve fibres which are both slow conducting and closely involved in the experience of pain. Thus when there is a relative deficit of thick myelinated nerve fibres from regional peripheral nerves, the thin myelinated and unmyelinated nerve fibres have

readier access to the central nervous system and therefore less intense stimulation than usual in the affected area of the skin may give rise to pain.

The pattern theory has also not escaped criticism from several sources (Bonica, 1980; Melzack & Wall, 1965; Fordyce, 1976). Fordyce (1976) states: "in strict construction, it fails to account for the physiological evidence of nerve fibre specialization. However, that is not to suggest a total rejection of pattern concepts" (p.15).

Bonica (1980) further criticises the pattern theory on the grounds that it is merely neurophysiological and only addresses itself to acute pain. The pattern theory, like the specificity theory, gives no information on the exact mechanism of chronic pain. This lack of scientific interest in chronic pain stimulated Melzack and Wall (1965) to propose a new theory of pain, namely, the gate-control theory.

1.3 Gate-control Theory

This theory was proposed by Melzack and Wall (1965) and conceptually is still the most relevant for our understanding of the various aspects of pain. The gate referred to is a hypothetical mechanism at the level of the spinal cord, which is assumed to modulate signals from the peripheral nerves before they are centrally processed. The theory proposes that the cells transmitting pain through the spinal cord (T-cells) are under the control of the substantia gelatinosa neurons in the posterior horn. This is the site of convergence of large diameter sensory Beta fibres from cutaneous mechanoreceptors, small diameter A-delta and C-sensory fibres from peripheral structures including the viscera, and descending fibres from the brain which end in the substantia gelatinosa.

The gate-control theory as proposed by Melzack and Wall (1965) further states that the substantia gelatinosa neurons exert an inhibitory effect on the pre-synaptic afferent terminals supplying the T-cells. Hence when a stimulus is applied to the large diameter fibres, the T-cells are excited directly, but their output is soon diminished because of feedback inhibition through collaterals of the large fibres, terminating in the substantia gelatinosa, with the result that the gate is closed. However, when a stimulus is applied to the small diameter fibres the T-cells are again directly excited, while the inhibitory effects of the substantia gelatinosa are decreased, with the result that the gate is opened for pain transmission.

The original Melzack and Wall theory of pain is illustrated in Figure 3.1.

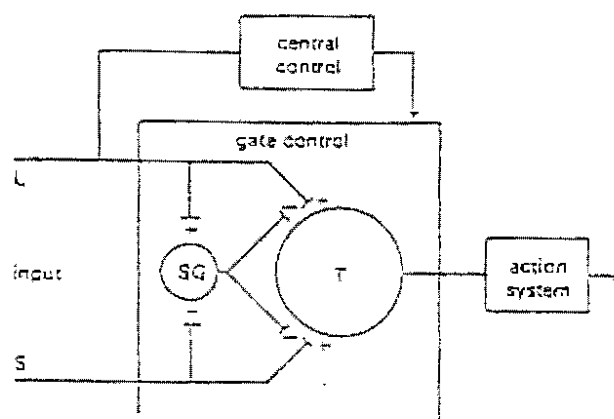


Figure 3.1: Schematic of the gate-control theory of pain. L, the large-diameter fibres. S, the small-diameter fibres. The fibres project to the substantia gelatinosa (SG) and first central transmission (T) cells. The inhibitory effect exerted by the SG on the afferent fibre terminals is increased by activity in L fibres and decreased by activity in S fibres. The central control trigger is represented by a line running from the large-fibre system to the central control mechanism projecting back to the gate-control system. The T cells project to the action system. +, excitation, -, inhibition. From Melzack, R., and Wall, P.D. (1965): Pain mechanisms: A new theory. *Science*, 150, P971.

The gate-control theory has been criticised on the grounds that it ignores the specific sensitivity of free nerve

endings for noxious stimuli. The convergent excitatory and inhibitory influences of A and C fibres through feedback mechanisms has not been confirmed while the existence of the presynaptic control of the T-cells remains in debate but it is likely that it exists.

Four years later Wall (1969) expanded the theory by taking into account subsequently acquired new knowledge derived from physiology to comply with the anatomical histological and biological features of the dorsal horn and behavioural science that further emphasise the motivational, affective, and cognitive aspects of the pain experience as the Cascade Model.

In the Cascade Model the anonymous T-cell was replaced by the cells of Lamina V of the dorsal horn which were found to respond to nociceptive afferents. Wall (1978) also believed that the Lamina V cells are excited by Lamina IV cells which in turn are excited by beta afferents. Inhibitory circuits still rely on unidentified and hypothetical cells in Lamina II and III (substantia gelatinosa layers). Descending controls from the brainstem and pyramidal tract are known to affect strongly the inhibitions and firing of Lamina IV and V cells. They also suggested the neospinothalamic projecting system in the brain serves to process sensory discriminative information about the location, intensity, and duration of the stimulus, whereas impulses that pass through the paleospinothalamic tract and paramedial ascending system activate reticular and limbic structures that provoke the motivational and aversive drive and unpleasant affect that triggers the organism into action. Neocortical higher central nervous system processes, such as evaluation of the input in terms of past experience, exert control over both discriminative and motivational systems (see Figure 3.2).

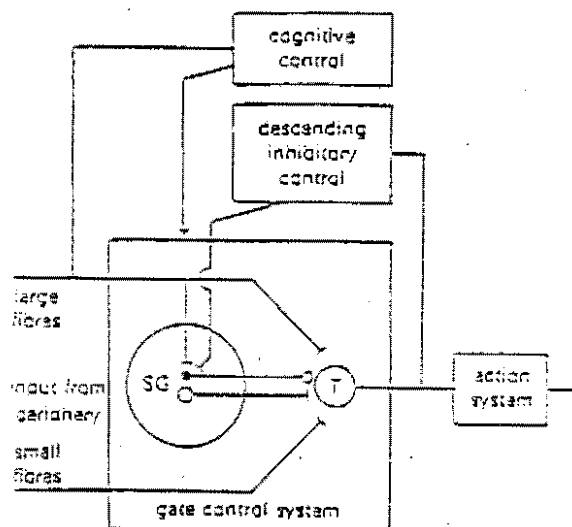


Figure 3.2: The gate-control theory. The new model includes excitatory (white circle) and inhibitory (black circle) links from the substantia gelatinosa (SG) to the transmission (T) cells as well as descending inhibitory control from brain-stem systems. The round knob at the end of the inhibitory link implies that its actions may be presynaptic, postsynaptic, or both. All connections are excitatory, except the inhibitory link from SG to T cell. Modified from Melzack, R., and Wall, P.D. (1983): *The Challenge of Pain*. New York: Basic Books.

A review of the descending fibres by Bogduk and Lance (1982), indicates the following.

Firstly, fibres of the periaqueductal gray matter of the midbrain activate the nucleus raphe magnus (NRM) which projects to the substantia gelatinosa through the dorsolateral funiculus. It is believed that this is the pathway which uses serotonin as a neurotransmitter and this pathway has been established electrophysiologically by Shah (1980).

Secondly, the nucleus reticularis magnocellularis also projects to the substantia gelatinosa through the dorsolateral funiculus and uses an unknown transmitter, possibly noradrenalin, or reaches the substantia gelatinosa through a secondary connection to noradrenergic neurons projecting from the reticular nuclei as locus ceruleus, the parabrachial nuclei, the A1-3 nuclei, or the nucleus reticularis lateralis.

The third descending pain inhibitory system mentioned by Bogduk and Lance (1982) is the mesencephalic lateral reticular formation system whose connections to the substantia gelatinosa are at the moment unknown. However, it is known that the stimulation of the mesencephalic lateral reticular formation, periaqueductal gray matter, nucleus raphe magnus, and the nucleus reticularis magnocellularis systems inhibits pain transmission in the dorsal horn.

The overall notion, however, of the gate-control theory still remained that the number of impulses in the ascending sensory system is the result of the fine balance between the large and small diameter fibre components which have mutually antagonistic effects on the pain pathway. Hence, pain can arise when the small fibre component is strong enough to overcome the effects of inhibition. When the output of the spinal cord transmission cells exceeds a critical level, the neural areas responsible for pain are activated. According to Melzack (1973), Melzack and Dennis (1978) these areas include: (a) the motivational-affective system, (b) sensory-discriminative system, and (c) the cognitive-evaluative system. Conversely, pain is suppressed when either the large fibre component or corticofugal control predominates.

Newman (1980) criticises the gate-control theory on the grounds that it ignores the specific sensitivity of free nerve endings for noxious stimuli. According to Newman, the convergent excitatory and inhibitory influences of A and C fibres through feedback mechanisms have not yet been confirmed. Also, the existence of pre-synaptic control of T-cells remains debatable, although extensive convergence of all types of afferents does take place in the posterior horn.

One of the great merits of the gate-control theory is to suggest that psychological processes such as past experience, attention and emotion may influence pain perception and

response by acting on the spinal gating mechanism through the descending fibre systems. Some of the psychological activities may open the gate while others may close it (Melzack, 1973). An equally important contribution of the gate-control theory is that it views pain as a unitary psychophysical concept, and hence pain syndromes are seen as containing sensory, perceptual, psychological, and environmental factors. These factors preclude viewing the pain problem within the confines of a medical model. This point is highlighted by Melzack and Dennis (1978) who state: *"It is now recognised that every physiological explanation of pain contains an implicit psychological concept that has a profound impact on both the study and treatment of pain"* (p.1).

1.4 The Role of Opiate Receptors and Peptides in Pain

When the foregoing theories were propounded they were based on neuro-anatomical and neurophysiological facts about pain transmission and interpretation as they were known at the time. New neuro-anatomical, neuro-physiological and neuro-pharmacological discoveries have been made recently. This section will focus on these discoveries which are concerned with opiate receptors and endogeneous opiates which bind to these receptors.

The idea that drugs act at specific molecular sites in the body (referred to as receptor sites), so as to elicit specific biochemical, physiological and behavioural effects, has long been recognised in pharmacology and physiology. The evolution of the notion of receptors and the methods designed to study specific receptors in tissues, have been steadily refined over the years.

A major breakthrough was made in 1973 when investigators demonstrated opioid receptors in the various regions of the monkey and human brain (Hiller, Kuhar, Pert & Snyder, 1973; Hiller, Pearson & Simon, 1973). Opioid receptors are receptors to which morphine, an opiate, binds and exerts its effects in the central nervous system. These investigators demonstrated through biochemical studies that the number of opiate receptors varied markedly in the various brain regions.

As suspected, there were more receptors in areas associated with pain, such as the dorsomedial thalamus and periaqueductal grey matter of the midbrain. However, other areas of the brain also had many, for example, the anterior and posterior hypothalamus, precentral gyrus, temporal lobe, frontal lobe, occipital lobe, hippocampus, lateral thalamus, raphe area, floor of the fourth ventricle, and parts of the spinal cord.

The results obtained in these biochemical studies, prompted Kuhar and Yamamura (1974, 1975) to use high resolution light microscopy to localise opiate receptors in sections of brain tissue. They developed a method for localising cholinergic muscarinic receptors in the brain, and applied it to the question of where opiate receptors were situated. High densities of opiate receptors were found in the substantia gelatinosa of the spinal cord (Atweh & Kuhar, 1977). These investigators also found high densities in the substantia gelatinosa of the spinal trigeminal nucleus, an area concerned with processing painful stimuli emanating from the head region, in the periaqueductal grey matter and floor of the fourth ventricle, the dorsal medial nucleus of the thalamus, and the so-called "intralaminar nuclei" of the thalamus. Thus, these microscopic studies revealed high levels of opiate receptors at several places in the brain known to be involved with the control of pain. Consequently,

it seems likely that opiate drugs affect the processing of pain at several places in the brain.

Other experiments (Basbaum & Fields, 1978) indicate that opiates are probably most effective at supraspinal sites. In animal preparations where the spinal cord has been severed (Williams, 1978), it takes much higher doses of opiates to suppress painful reflexes than it does in an intact animal. This suggests that the first site at which opiates act, is above the spinal cord, while at higher doses they can effectively inhibit pain at the level of the spinal cord. According to Uhl, Goodman and Kuhar (1979), the important supraspinal sites are the medullary raphe nuclei which contain serotonin and which also appear to have adjacent to them enkephalin-containing cells.

Pert and Snyder (1973) argued that the opiate receptor sites they had demonstrated could not have been meant for an exogenous opiate like morphine. There had to be an endogenous substance produced by the body which acts as a binding agent at these receptor sites.

A second major breakthrough was made when it was demonstrated that such endogenous substances which act like morphine, do exist (Hughes, 1975). These substances were distributed in the same areas as the opioid receptors and were also found to bind to these receptors. Since they acted like morphine and were endogenous, they were termed endorphins. According to Hughes, Smith and Kosterlitz (1975), endorphins are part of the adrenocorticotrophic hormone molecule (ACTH) which is secreted by the hypothalamus. Enkephalins are part of the endorphins. These latter investigators found that methionine enkephalin and leucine enkephalin were active at the opiate receptor sites and have the same opiate activity and side effects as morphine. Like the opiate receptors, the distribution of enkephalins varies markedly throughout the

brain in biochemical studies. Studies by Atweh and Kuhar (1977), Goldstein and Cox (1977), Uhl, Childers and Snyder (1978), and Terenius (1978) found a high density of both enkephalins and opiate receptors in laminae I and II of the substantia gelatinosa. These findings prompted the utilisation of electronmicroscopic techniques to localise this peptide with greater precision.

By using immunocytochemical methods several investigators (Hokfelt, Ljungdahl & Terenius, 1977; Stumpf & Sar; 1978, Uhl et al., 1978) have identified neurons in the central nervous system that contain the enkephalins. These neurons and their appendages are found in the areas which contain opiate receptors. For example, the substantia gelatinosa contains axons, nerve terminals, and cell bodies that contain enkephalins. These investigators (Hokfelt et al., 1977; Uhl et al., 1978), found other areas in the brain which are involved in analgesia, such as the dorsal medial thalamus, which also have enkephalin containing neurons. In agreement with the studies on opiate receptors, the enkephalins were found in other brain areas associated with other physiological functions known to be altered by opiates (periaqueductal grey matter, dorsolateral funiculus pathway, nucleus raphe magnus). A striking result of these studies of enkephalins was that many of the areas with high levels of opiate receptors showed similarly high levels of enkephalins. This distribution of opiate and enkephalin receptors, as well as other experiments on enkephalin peptides (Frederickson, 1977; Simantov, Kuhar & Pasternak, 1976) showing that opiate drugs and enkephalins have similar actions, strongly support the notion that the enkephalins are the endogenous substances that act on the opiate receptors. The above investigators (Frederickson, 1977; Simantov et al., 1976) believe that enkephalins function as neurotransmitters.

Further studies on opioid receptors and endorphins have also been primarily in the field of neuropharmacology. The first endorphins identified within the central nervous system were enkephalins (Hughes 1975; Hughes et al., 1975), then beta-endorphin (Chretien, Benjannet & Dragon, 1976; Cox, Goldstein & Li, 1976), and then dymorphin (Goldstein, Fischli & Lowney, 1981) and subtypes of the enkephalins (Kangawa, Matsuo & Igrishi, 1979; Weber, Evans & Barchas, 1982). These are the endogenous opioid peptides known to exist to date.

These compounds are not only confined to the central nervous system. Beta-endorphin is localised mainly in the pituitary gland (Pasternak, 1988) but is also found in the bloodstream. Several investigators have tried to determine whether there is a link between elevated or decreased levels of plasma beta-endorphins and various illnesses (Bennet 1985; Gaffney 1989; Genazzani, Sandrini, Facchinetti, Rizzo & Alfonsi, 1986; Hargreaves, Raymond, Dionne & Muller 1986; Menegazzi 1988; Sheps, Kirkwood, Adams & Alan 1987; Weidinger 1986). The results are equivocal.

Studies involving these peptides were made difficult because of the rapid degradation of these substances in vivo. Synthetic analogues which are more stable have been derived, for example, morphiceptin, metkephamio, and others. These derivatives have been used by investigators to confirm that these endogenous opioids were potent centrally active compounds (Pasternak, 1988).

Other studies have focused on devising ways of preventing the rapid degradation of these endogenous opioids by interfering with the enzymes which degrade them (Dickinson 1986; Willer, Dehen & Cambier 1985). This has been done in the hope of enhancing their endogenous pain modulating effects by allowing them to accumulate in the tissues.

Regarding the receptors, the only new discoveries are the various subtypes which have been identified and classified by their pharmacological specificity and actions (Pasternak, 1984, 1986, 1988). The morphine and enkephalin receptors have been studied most extensively. Research shows that some receptors offer binding sites to enkephalin only or to morphine only, and other receptors offer binding sites to both morphine and enkephalins simultaneously. This has great clinical implications from a pharmacological point of view as it suggests that the side effects of opioids which limit their use might be mediated through different receptors than those which mediate their pain relieving properties. The development of exogenous opioids which are highly selective and lack the more serious side effects of respiratory depression, constipation, and dependence, is thus no longer a remote possibility (Pasternak, 1988).

In short, the gate-control theory of pain and the above-mentioned discoveries, suggest that psychology has much to offer in both the understanding and the treatment of pain. Psychological theories of pain will now be reviewed.

2. Psychological Approaches to Pain

2.1 The Sensory-decision Theory

The gate-control theory of pain provides for sensory, cognitive, and emotional factors in the experience of pain. The Sensory Decision Theory proposed by Chapman (1978, 1980) emphasises the role of perception in pain. Chapman (1978) asserts that in normal waking life the brain maintains a moment-to-moment awareness of both the body and the

surrounding physical environment. This ongoing process of awareness is termed perception. According to this theory, with every new stimulation, either somatic or environmental, the brain takes notice, organises, and then interprets and evaluates the event using information from other sources and from memory. He further states that decisions about sensory input must first be made in order for stimulation to become pain. He defines pain as an *"unpleasant sensory and emotional experience that occurs when tissues are damaged or stressed"* (Chapman, 1978, p.169).

Borrowing from neurophysiology, Chapman (1978, 1980) mentions the structure and the function of the A-delta fibres and the C fibres. Both the A-delta and C fibres have their cell bodies located in the posterior root ganglia and they enter the posterior horn of the spinal cord with termination in Laminae I, IV and V.

The A-delta fibres are small fibres that facilitate the transmission of pain. When the A-delta fibres are stimulated an acute sharp pain is produced with the result that the individual will focus his attention on the source of the pain. Therefore the A-delta fibres are seen as providing a warning signal that tissue damage has occurred to the body. This warning signal gives immediate information concerning the extent of injury and its location. C fibres are small diameter nerve fibres that provide information concerning slow, diffuse, lingering pain. Chapman believes that this type of pain is also informative, providing a reminding signal that tissue should be protected from further injury. The classical distinction between first and second pain mirrors the distinction between warning and reminding systems. Both forms of pain are caused by sudden traumatic injury. First pain is characterised by precise location of injury, a bright quality and a sharp, well-defined sensation. Second pain which occurs

just after the first pain disappears, is vague, poorly localised and persistent. This pain increases in intensity with recurrent stimulation.

Sensory-decision theory, like the gate-control theory, emphasises that all sensory input enters an active nervous system. Events that cause pain stimulate many sensory neurons, some of which are related to pain. Chapman (1978) proposes: *the crucial concept is that injury involves an entire receptive field and that response entails a large number of cells acting in unison. It is because cells react in unison to natural injury stimuli that information transmission, and not only simple energy transduction, occurs. (p.113)*

A stimulus may result in a barrage of impulses from the receptive field that conveys several types of information, particularly if the stimulus itself has several properties that can vary. The filtering of the barrage of information takes place through the process of attention.

Attention generally involves the filtering of sensory signals, selecting some for processing while ignoring others. According to Chapman (1980) attention to pain is usually adaptive. He states: *"before the stimulus gives rise to a response, the observer must process the input through the attentional filter and central organization mechanisms. This occurs prior to making a decision about what response he will give" (p.120).*

The decision will be determined in part by the sensory input received, but perceptual habits, beliefs, expectations, potential costs, and rewards, and memory of previous events will also affect it.

Vigilance is the predisposition to attend to certain classes of events. According to Chapman (1978, 1980) injury

may result in chronic pain as a result of continuing vigilance. Pain causes the person to focus on the area of pain and to monitor sensations for changes. Vigilance for even weak and infrequent stimuli makes it more likely that these stimuli will be noticed. When pain becomes familiar, it tends to take on a perceptual independence and stability of its own. It may become part of the person's normal perceptual routine, and eventually result in chronic pain. Vigilance is regarded by Chapman (1980) as a product of a learning process, the occurrence of which reflects the effects of past experience on present perception. It may result from instructions to pay attention to particular events, or it may develop as a perceptual habit because of selective reinforcement for identifying certain kinds of stimuli in the past.

According to sensory-decision theory, variability in the activity of the nervous system leads to a variable experience of pain, making the perceptual decision about the presence of pain subject to uncertainty. Many individual factors, such as expectancy (when pain is linked to financial reward), attention, vigilance, and the importance of the signal to the individual, as well as variations in the strength of the signal, affect sensory sensitivity.

Chapman (1980) cites cases where individuals try to maintain their pain symptoms in order to gain a lucrative payoff from litigation. Motor vehicle accident victims are a case in point. These individuals make every effort to maintain their pain symptoms in spite of nature's tendency to heal. In such cases, the secondary gains associated with pain are enough to make the individual somatically hypervigilant.

Sensory-decision theory places pain clearly within the realm of psychology, using the principles of perception. Chapman's (1980) arguments in support of the theory, point to

the variability of pain according to individual and situational factors. The theory emphasises the perceptual aspects of pain, perhaps to the neglect of the physiological aspects. However, the shortcomings of this theory (neglect of physiological aspects) are covered by the gate-control theory whereby neurophysiology and psychology are married. Both the gate-control theory and the sensory-decision theory are useful in the treatment of pain. Successful pain control often involves changing the cognitive-motivational components (presence of discomfort or unpleasantness, distress) while the sensory component remains intact. As a result, hypnosis, anxiety reduction methods, desensitisation and attention distraction techniques as well as other behavioural techniques can be effective alternatives and supplements to pharmacology and surgery in the control of pain.

It is appropriate at this stage to provide other psychological approaches to pain experience. For historical reasons one would have preferred to place them before the neurophysiological theories and the sensory decision theory, because the formulations are to a large extent philosophical rather than empirical in nature. Also these early psychological formulations concerning the psychological variables in pain, were hampered by a lack of adequate constructs as will be seen in the work to follow, particularly when explaining, for example, how the unconscious conflicts, associated personality traits, and the biochemical interact to produce pain.

The traditional theoretical approach to pain has been either organic-neurophysiological or psychological. According to the psychological view, pain may be the product of unpleasant emotions or life experiences which are not consonant with the physical state of the individual. A patient may be seen, for example, as displaying a conversion

reaction, or as having an hysterical personality. Phenomenologically, pain due to the emotions cannot be distinguished from pain which is biophysically induced. Hence the distinction between mind and body does not help the patient in pain, although it may help the clinician to approach the individual in pain in a more judicious manner.

2.2 Psychogenic Pain

The term "psychogenic pain" is used for those pain reports that are not accompanied by or do not appear to have reference to discernible body damage. In psychogenic pain the prime aetiological factors are located in the psychological as opposed to the physical state of the individual. The researcher would like to point out that the most useful way to understand such pain complaints is to view them as expressions of pain in the language of psychology instead of the language of physiology. Dworkin et al. (1988) stress that psychogenic pain is a *real* pain for the patient. The patient experiences the same qualities of pain (burning, stabbing, and piercing) with the same intensities (dull, severe, and excruciating) as does the patient reporting *true* pain, that is, a pain we can better explain because the patient indicates where it hurts and the clinician can see why.

The prevalent view currently is to abandon trying to force patients with pain into a single continuum of pain response that has somatogenic components at one end and psychological components at the other. Such an either/or dichotomy reflects an old fashioned mind-body dualism that is not consistent with our present knowledge of psychophysiology as attested by the gate-control theory. In reality there are many psychogenic factors including anxiety, depression, home

circumstances, and personality, which are found to have a bearing on pain. Hence individuals, whether they are in pain or not, bring more than their present concerns to the doctor. According to Dworkin et al. (1988):

they bring their past experiences, their predispositions to respond in particular ways to stress, anxiety, body damage, interpersonal dealings with authority, a host of other innumerable, intrapsychic and interpersonal considerations. When all these experiences are taken together, they add up to the whole person. (p.248)

It follows then that when one speaks of pain, one does not only refer to physiological mechanisms but also to experiences. These painful experiences can occur without a lesion and may be regarded as psychological. The following are the various psychological approaches to pain.

2.3 Psychodynamic Approach

Freud (1955) in Studies in Hysteria argued that pain will in some cases have a psychodynamic significance, that is, a psychological meaning and function. He also regarded pain as a conversion syndrome, representing the transformation of repressed drives into physical symptoms. Freud's major views on pain have been summarised by Merskey and Spear (1967):

- (a) pain is a common symptom;
- (b) unpleasant affect is converted into bodily pain;

- (c) the choice of a symptom is determined by precipitating events;
- (d) the pain often has a symbolic meaning;
- (e) there is frequently hereditary influence;
- (f) there is always an organic substratum, sometimes a local lesion but at least a mnemonic trace;
- (g) conflict, guilt and resentment were aspects of the illness in many of the cases described, but not stressed by Freud in relation to pain.

According to Merskey and Spear (1967), the first two points are widely accepted, the third and fourth points are supported by Freud's (1955) later studies in hysteria; the fifth point is disputable since a familial effect need not be a hereditary one; point six cannot be supported since there are at least some patients, for example, schizophrenics, who show no evidence of peripheral sensory disturbance and who still complain of pain; and point seven, like the third and fourth points, has been developed and extended in later studies (Merskey & Spear, 1967).

The psychodynamic explanation has been elaborated on by several psychoanalytic theorists since Freud. Walters (1969), in his analysis of patients with intractable pain, found that a hysterical conversion mechanism played a significant role in producing pain of psychological origin. His findings are similar to those of Engel (1959), who also observed that conversion symptoms play an important role in the production of persistent pain. The explanation of pain by Freud (1955), Engel (1959), and Walters (1969), suggests that pain becomes an outlet and resolution for conflict which has become too unpleasant for the individual to cope with at a conscious level. Psychologists like Freud were the first to point out the role of psychological factors in the production of pain.

Engel (1959, p.235-236) has also suggested that there is a "pain prone personality," characterised by feelings of guilt which can in part be relieved by pain. Other relevant characteristics which he lists are: a family history of violence and punishment that predisposes the patient to use pain to expiate guilt feelings; a personal history of suffering and defeat; an inability to tolerate success and a tendency to solicit pain with a large number of injuries, operations, and painful examinations; a state of anger and hostility which is turned inwards rather than outwards and is experienced as pain; a conflict over sexual impulses that are usually unconscious and expressed only indirectly; aggressive and guilt feelings symbolised by the appearance of pain; and the development of pain to reflect the loss of another person. The immediate trigger for pain in the case of such a personality may be the loss of someone valued.

Psychological factors are seen as causal in conversion pain because of the temporal relationship between such factors and the development of the pain. Also, a pattern of suffering seems to be present from childhood, and in adulthood, incidents which threaten the patient's established pattern of suffering (e.g., success) arouse powerful repressed feelings (e.g., aggression) or concern about real or threatened loss (e.g., affection). These repressed feelings may result in pain or may exacerbate it. In this way, the suffering role is reaffirmed. It would appear that the conversion process results in pain, in patients who have strong, unconscious dependency needs. Success may present this type of patient with a conflict, for his image is that of a sufferer, and he must preserve that image in order to maintain his self-esteem.

2.4 Pain and Extraversion-introversion

There is compelling evidence that the individual's personality plays an important role in the perception of and reaction to pain. Theorists such as Merskey (1964) and Merskey and Spear (1967) have studied the relationship between pain responses and personality traits such as extraversion and introversion. The expression of pain appears to be associated with extraversion, and the inhibition of such expression with introversion. Using the Eysenck Personality Inventory it has also been suggested by these investigators that extroverted individuals have a lower pain threshold than introverted individuals. However, subsequent studies (Levine, Tursky & Nicholls, 1966) found that the difference between these two groups was that of communication style with no difference at all in their pain thresholds. These findings have been corroborated by other researchers, namely Bond (1971, 1973), Bond and Pearson (1969), Bond and Pilowsky (1966), and Davidson, McDougall and Evalynne (1969). Bond (1971, 1973) found that extroverts under some conditions tolerate pain better than introverts, but may in some situations report more pain because of greater readiness to risk the possibility of social disapproval.

2.5 Personality Profiles of Cancer and Psychiatric Patients

Other studies have examined pain in psychiatric patients and the personality profiles of cancer patients compared with those of control samples (Bond, 1971; Sternbach, 1974). A relatively high incidence of pain is found both in psychiatric groups and in cancer patients and these two groups have a more neurotic profile than controls. It is, however, unclear to

what extent the experience of pain causes emotional difficulties.

At this stage, it is important to distinguish between acute pain and chronic pain. Acute pain is sudden in onset and is of a relatively short duration, whereas chronic pain is insidious and occurs over a long period of time. Both oncology and psychiatric patients may experience chronic pain. According to Bond (1979a), chronic illness is contemplated with anxiety and those affected are uncertain of their fate:

Pain, when present, tends to accentuate these anxieties. Powerful analgesic drugs can cause reduced awareness and the lowering of the powers of concentration, and surgical treatments may cause unacceptable anaesthesia and failure of bladder function. It may also give rise to fear and depression, which follows the initial phase of disbelief and which precedes the final acceptance of irreversible changes, a life of disability or the inevitable termination of life itself. It also leads to withdrawal from social contact and a greater level of introspection than is normally present. (p.94)

From the above quotation from Bond (1979a), it emerges that both cancer and psychiatric pain can cause an endless cycle of anxiety, depression, withdrawal from friends, and years of suffering. In addition, these factors can make pain seem much worse than it is and cause severe emotional difficulties.

2.6 Anxiety and Pain

Anxiety is perceived as one of the contributors to cancer and surgical pain. The general conclusion has been that the greater the anxiety, the greater the pain (Chapman, 1986; Chapman & Bonica, 1985; Sternbach, 1968).

Anxiety has been shown to occur with chronic as well as acute pain. Merskey and Spear (1967) reported that between 45% and 50% of patients attending a psychiatric clinic reported pain. Similarly Merskey (1974, 1980) reported that the most common psychiatric diagnoses found in psychiatric patients with persistent pain were anxiety neuroses, hysteria, and neurotic depression. Sternbach (1974) has linked anxiety with acute pain. Anxiety commonly results in the lowering of the pain threshold which implies that pain tends to be felt earlier and more intensely, and to have a greater effect on behaviour.

Klusman (1975) directed his attention to the study of labour pain. He obtained measures of fear and anxiety before and after a sample of mothers attended classes on childbirth and child care. The classes were found to be effective in reducing fears for the baby, irritability, and tension to a significant degree.

The anxiety levels were found to exert a significant effect on self-ratings of pain during the process of labour. Klusman (1975) concluded that anxiety enhances the perception of pain.

Krishnan, France, Pelton, McCann, Davidson and Urban (1985) reported that anxiety was highly prevalent among chronic pain patients, especially those with major depression. Malow, West and Sutker (1986) performed a signal detection analysis of responses to pressure pain stimulation as a function of anxiety level among chronic drug abuse patients.

Highly anxious patients compared with low and moderately anxious patients demonstrated lower pain thresholds.

The concept "the fear of pain", especially when combined with an avoidance coping strategy, has been proposed as a key theoretical element of a model to explain long-term exaggerated responses to pain (Lethem, Slade, Troup & Bentley, 1986; Slade, Troup, Lethem & Bentley, 1987). Generally, all of the above studies stress that pain and anxiety have been associated with each other. To reduce pain therefore involves reducing the anxiety, although the exact relationship of pain and anxiety is still not fully understood.

Cultural differences in trait anxiety and pain behaviour have been noted. Weisenberg, Kreindler, Schachat and Werboff (1975) found that dental patients from Puerto Rico yielded the highest level of trait anxiety, whites the lowest, while blacks were in between. Barak and Weisenberg (1986) replicated this study in Israel and found that dental patients who came from a mid-Eastern background displayed higher levels of trait anxiety than patients from a Western background. In both studies those patients who displayed a high level of trait anxiety were also more likely to display attitudes denying or avoiding dealing with pain.

Although the exact relationship between anxiety and pain is still unclear, it would seem from these studies that the relationship is transactional. Anxiety and pain are both influenced by the individual and by the environment. There is a dynamic relationship, a transaction, between the individual and the environment, which determines what is painful and how the individual responds.

In reviewing the above studies, it became clear that there is no comprehensive psychological theory of pain. The evidence reviewed was gathered from a few clinical cases and does not necessarily apply to pain in general. However, since

pain is encountered throughout life, its role in personality development can hardly be doubted although the prominence of its contribution will vary from one individual to another.

2.7 The Behavioural-learning Approach to Pain

Learning theorists make a distinction between respondent behaviour and operant behaviour. Respondent behaviour (classical conditioning) is closely linked with the occurrence of a particular stimulus or situation and does not require any other support for its establishment or maintenance. According to Gordon (1987), this sort of inflexible, patterned situation most often exists in reflexes and in the responses controlled by the autonomic nervous system. The relationship between stress and the autonomic nervous system responses such as rage and changes in heart rate and blood pressure is a good illustration of classical conditioning.

The respondent learning model is also useful for explaining learned unpleasant autonomic reactions such as nausea related to pain. Feist and Brannon (1988) demonstrated how respondent learning may explain nausea. They cite the case of Marcy as an example:

Marcy gets nauseous each time she goes to the dentist. At first, she thought she was allergic to one of the medications the dentist used, because she experienced nausea and nearly fainted when she had a tooth filled as a child. However, testing revealed that she did not have an allergy. She accepts the fact that she does not have an allergy, but knows that the smell in the dentist's office makes her sick. She is miserable on days when she has dental appointments, and is often

nauseous even when waiting in the dentist's office. Marcy's response has been conditioned, and is now an anticipation of her visit, much as salivation was for Pavlov's dogs. (p.24)

Marcy's earlier experiences whenever she had a tooth filled, were so frightening that she became ill. The illness was a physical reaction to her fear, mediated by the autonomic nervous system. In this example, the unpleasant experience of having a tooth filled is the unconditioned stimulus. The many stimuli of the dentist's office became conditioned stimuli, because they were associated with the pain and the fear of the dental procedure. These stimuli alone now induce nausea and a feeling of illness.

Since Marcy's response is conditioned, that is, it is a learned response, it seems as though she could be taught not to respond in this way by using Wolpe's (1958) therapy of systematic desensitisation.

Operant behaviour, on the other hand, is modified by the consequences of that behaviour : human responses operate on the environment, resulting in either positive or negative reinforcement. Thus one tends to persist in those behaviours that are rewarded and eliminate those which bring punishment.

According to Fordyce (1976), certain responses to pain, such as withdrawal or crying, will be directly elicited by the experience (respondent behaviour), while others may be prompted by the experience but depend effectively on the outcomes which they produce (operant behaviours). The operant approach involves an assessment of the reinforcements which are maintaining the pain behaviour. Therefore, responses by others, particularly significant others, to the overt pain behaviour are analysed in order to determine the consequences of overt complaints regarding pain. An individual may, for

example, adopt and maintain a number of pain behaviours because they bring rewards such as sympathy, attention, and nurturance, and thus enable him to avoid activities such as social engagement. According to Fordyce, these pain behaviours are subject to learning and conditioning just like any other behaviour.

This approach represents a complete contrast to the psychodynamic model of pain. This approach concentrates on the course rather than on the cause of pain and it is essentially treatment orientated.

The implication of a behavioural perspective for pain is that in the analysis of pain, the clinician must attend to what the individual in pain does (his actions or behaviours), and not to what the patient says he is experiencing. The clinician's major task is to direct the patient's attention to behavioural responses which are antagonistic to the expression of pain. In this approach the pain behaviour is ignored and the non-pain behaviour is rewarded.

The principles of operant and respondent learning can be invoked to explain many aspects of human behaviour. However, no one learning theory can account for all patterns of pain behaviours. For instance, neither operant nor respondent principles can explain the phenomenon of observational learning, which is next discussed.

The experience of pain may be involved with feelings of considerable uncertainty. When faced with uncertainty, people often look to others as guides so as to determine both how the experience should be interpreted and the norms governing behaviour in that situation. This process has been described as one of social comparison (Festinger, 1954). According to this process we compare our own interpretations and reactions to those of others to decide whether or not they are valid or appropriate in the circumstances. One may also seek a lead

from another person before making one's own interpretation and responding.

Thus, the presence of a calm individual to act as a model may reduce the response to a painful stimulus, and the presence of one who appears distressed may intensify the response. Such effects have been demonstrated in laboratory studies (Craig & Neidemayer, 1974; Wolff, Cohen & Greene, 1976; Wolff & Horland, 1967) where the experimenter recruits a confederate who supposedly undergoes electric shocks similar to those to which the subject is exposed and instructs him to react to these with or without expression of pain and distress. According to these investigators (Wolff et al., 1976) both "tolerant" and "intolerant" models in this type of study can modify subjects' reports of the intensity of the pain they experience and their willingness to tolerate shocks of various intensities.

The process of social comparison is similar to observational learning as formulated by Bandura (1977). Both involve models from whom the person learns certain behaviours through observation. One assumes that similar effects can be observed in clinical settings, whereby patients with similar problems or undergoing similar treatment procedures observe each other, develop expectations about pain intensity and the outcome of treatment, and learn the norms of pain expression within the group. According to Fordyce (1976), modelling processes play a significant role in pain, especially in the context of the family. It has been observed that children's reactions to pain are influenced by the observations of their parents' pain behaviours. Thus, the child whose parents focus upon their own pain symptoms and react strongly to these, may come to react in the same way. This effect would initially operate with respect to specific situations, but could then generalise to other pain behaviours.

In summary, the behavioural-learning approach to pain views pain behaviour as occurring for reasons partially or totally unrelated to nociceptive stimuli arising from a diseased body organ, because pain behaviour may be reinforced by the environment. Hence the aim of treatment is to reduce pain behaviour through behavioural analysis and behavioural intervention in the patient's environment. Social comparison influences the strategies used by patients to cope with pain-inducing situations. Consequently, the person in pain can be expected to behave in either a calm or distressed manner, depending on the cues obtained from the social environment. In children, modelling processes may be responsible for inappropriate pain responses unrelated to organic pathology.

3. Conclusion

Pain with an organic basis has three important components: the peripheral stimulus and the physical reaction to that stimulus; the central registration of the physical reaction; and the psychological elaboration of that reaction. In contrast to pain that has an organic basis, psychogenic pain has no peripheral stimulus, and there is no central recording of the physical reaction to that stimulus. Psychological processes precipitated by an emotional event may produce pain in several ways. For example, pain may represent the solution to a psychological conflict, as occurs in a conversion reaction, where the patient's symptom does not conform to known anatomical or physiological patterns.

Both the neurophysiological and psychological foundations of pain are important because they convey to us that the individual in pain reacts as a whole. However, for academic clarity the psychological and neurophysiological aspects of pain are dealt with separately in this dissertation.

CHAPTER 4

THE TREATMENT OF PAIN

In order to understand the pain control techniques discussed below, it is important to note that pain involves sensory, emotional, and cognitive components. Although these interact, the evidence reviewed below shows that the emotional and cognitive components are learned. If these can be altered, the experience of pain can be modified.

Pain is a psycho-physiological phenomenon involving not only the perception of noxious stimuli but also the interpretation of the resulting sensations as "painful", and the evaluation of the pain as creating suffering. Hence, the therapy of pain should address the various dimensions of pain (sensory-discriminative, motivational-affective, and cognitive-evaluative) in order for an individual in pain to achieve maximum relief. For example, Hannington-Kiff (1974) and Edwards and Peters-Asdourian (Warfield, 1993) are of the opinion that the relief of pain should be approached from the physical, emotional and cognitive parts of the experience (see Figure 4.1.).

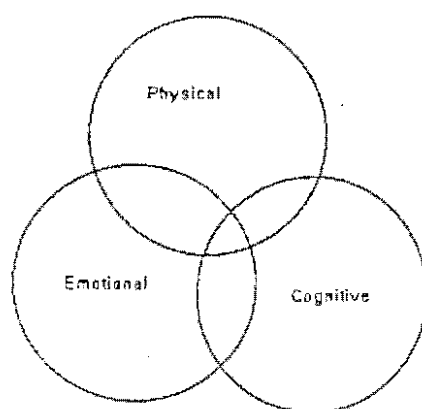


Figure 4.1. The three attributes of pain (based on Hannington-Kiff, 1974, p.56)

In the past, there has been a regrettable tendency to treat only the physical aspect of pain, an error which arises from considering the pain itself as the objective of treatment. In the researcher's opinion, it is the patient-in-pain who needs treatment.

The contention that pain is a result of the interaction of physical, emotional, and rational experience is supported on the whole by the gate-control theory advanced by Melzack and Wall (1965), which is still used to explain the dynamic nature of pain. Thus, it is plausible to provide a patient with psychotherapy, medication, and electrical stimulation at trigger points, simultaneously. Hence, Flor and Turk (1984) assert: "*therapeutic procedures in combination have been found to be more effective than the mere additive effects of each presented by itself*" (p.452). To the researcher, this kind of approach seems reasonable in terms of current knowledge about pain. The three factors of pain will now be dealt with individually.

1. The Factors of Pain and Principles of Pain Relief

Emotional, cognitive, and physical factors are important determinants of susceptibility to pain. These three attributes are also important in a person's ability to make decisions, to commit himself to change, and to adhere to a therapeutic programme.

1.1 The Emotional Factors of Pain

From the neurophysiological point of view, there is evidence that the brainstem, reticular formation, and the

limbic system, which receive projections from the spinoreticular and paleospinothalamic components of the somatosensory pathway, play a role in the affective dimension of pain (Newman, 1980; Rinaldi, Young, Albe-Fessard & Chodakiewicz, 1991). The limbic system controls a variety of emotions through its hypothalamic and temporal lobe interconnections. Some investigators (Hendler, Long & Wise, 1982; Lynn, 1990; Talbott 1991) consider the involvement of the limbic system to be important, since the majority of the neurosynaptic transmitters, which control emotion and some of the perception of pain, are located within this discrete anatomical area. In addition, the newly discovered enkephalins function as neurotransmitters within this area, in which the presence of morphine-like receptor sites has been documented. These are important for their inhibitory effect on pain. According to the above authors (Hendler et al., 1982; Lynn, 1990; Talbott, 1991) the important inhibitory effect on input is believed to be due to the central tegmental tract, a region which is the source of descending reticulospinal fibres. This observation is important to the gate-control theory since it suggests the presence of a system which exerts a tonic, widespread inhibitory influence on transmission through the somatosensory projection system.

In the researcher's opinion, cognitive-behavioural therapies exert their influence in the cerebral cortex, limbic system, and thalamus through the midbrain stem and dorsal horn pathways. Hence, cognitive-behavioural therapies are mainly concerned with the cognitive-affective processes in modifying the experience of pain. They encourage the individual to modify his or her evaluations of the sensory information to be less distressing.

1.2 The Cognitive Factors of Pain

Higher centres are involved in the experience of pain, according to Melzack (1973), and none of the areas in the brain can be said to be specifically related to pain perception. Melzack has supported this position with his statement that the idea of a pain centre in the brain is not feasible "unless virtually the whole brain is considered to be the pain centre, because the thalamus, hypothalamus, globus pallidus, parietal cortex and frontal cortex are all implicated in pain perception" (p.54). From Melzack's perspective, pain reflects the outcome of many peripheral and central nervous system structures. Also pain is appreciated and registered in terms of past experience and the outcome of various response strategies. According to Hannington-Kiff (1974) and Wegner (1988) a patient can obtain relief from pain, in a sense, when he is able to come to terms with his pain and live with it. This compromise is only brought about after a careful evaluation of the pain by the patient himself and the therapist. In the researcher's opinion, the relief from pain is based on the principle of distracting attention which is a conscious effort on the part of the individual in pain. A simple example, according to these authors, is the value of an interesting hobby, concentration on certain features of a task, the effectiveness of which is often clear to patients in retrospect when they realise that several hours have passed without them having been aware of pain.

1.3 The Physical Factors of Pain

Hannington-Kiff (1974) argues that the physical attributes of pain may be reduced by either removing the

noxious stimulus causing them or by preventing the neural integration of the pain. This argument is still valid. For example, if the noxious stimulus is external, like a burn, the subject may withdraw his hand from the stimulus. However, the greatest difficulty in the relief of pain arises when there is no such clear cut diagnosis or solution. In such a case, medication may be used to prevent the neural integration of the pain together with a variety of other somatic treatments, like nerve blocks, implantations of electrical stimulators, and physical therapy. This leads to the consideration of some of the current approaches to the treatment and management of pain.

2. Pharmacological Treatment for Pain

The quest to control pain has brought about many treatment approaches to the management of pain. According to Edwards and Peters-Asdourian (Warfield, 1993), drug therapy still constitutes the mainstay of medical therapy in the management of acute pain. Patients with chronic pain often have not responded to treatment directed at the original cause of their pain (as in patients with terminal malignant disease) or they may have pain resulting from the therapy itself. In these patients we must consider such factors as ongoing nociception, fear, stress, depression, and sleep pattern before a logical pharmacological plan can be constructed.

2.1 Narcotic Analgesics

The neuro-anatomical, neurophysiological, and neuro-pharmacological facts discussed previously, give us some

insight into the functioning of opiates which form a large group of the narcotic analgesics. Drugs which belong to this class are morphine, pethidine, hydrochloride, dipipanone, phenazocine, methadone, and others. "After thousands of years opiates remain the drug of choice for severe pain" (Pasternak, 1988, p.523). Their potency and ability to relieve "hurts" associated with nociceptive stimuli without significantly altering such basic sensations as touch, temperature, and proprioception separates them from all other analgesics. The choice must be guided by the relative potency of the drug as well as its effectiveness. The effectiveness of morphine is acknowledged by other investigators (Edwards & Peters-Asdourian 1993; Hinton, 1990; Levy, 1990; Nehme, 1993).

According to these authors, morphine and allied drugs have complex actions which provide more than an analgesic effect. With regular administration morphine can transform distress to peace, however, sound pharmacological principles must be used in its administration. According to Levy (1990), MS Continus controlled-release morphine sulphate tablets provide an even more significant advantage for patients who require regular narcotic administration. This product is given on a 12 hour rather than a 4 hour basis, resulting in a prolonged therapeutic blood level. Significant clinical experience in Europe with this agent under the brand name MST Continus has shown it to be a safe, effective, and advantageous addition to narcotic therapeutic regimen. More recently, several American studies (Swerdlow & Schraibman 1993) found a clinical advantage of this product over immediate release morphine. The physician prescribing these drugs must ensure that they are given in doses that achieve the desired effect and that the doses are not constrained by arbitrarily set limits.

The classic study by Marks and Sachar (1988) revealed that physicians often under-prescribe narcotics and nurses often under-medicate patients. Cases were highlighted by the authors providing evidence of the irrational treatment of pain with analgesics (Bonica, 1990). Howard-Ruben and Wickham (1986) surveyed a group of registered nurses and medical doctors in training to become specialists about their knowledge of pain management in cancer patients. The results of this survey revealed a lack of pain management expertise and many unwarranted concerns. Howard-Ruben and McGuire (1990) and Edwards & Peters-Asdourian (1993) advocate a preventive approach in the management of pain whereby analgesics are given on an around the clock schedule (patient control analgesia) rather than when necessary. They put forward the following advantages:

- (a) analgesics are most effective if given before the pain occurs or becomes severe
- (b) blood levels of analgesics will always be in an effective range, and
- (c) anxiety about pain medication is decreased.

Giving an analgesic when necessary, puts the patient in a dependent position of having to request pain medication after the pain has occurred. Because the analgesic threshold for any drug varies from patient to patient, the principle of allowing patients to guide their own analgesic therapy may be ideal.

Despite these advantages, Pasternak (1988) mentions side effects such as tolerance, physical dependence, respiratory depression, and constipation which may limit their usefulness greatly. However, various approaches and devices have been tested that allow patients to administer their own opioids

intravenously. Generally, such techniques are safe and effective. Bennet, Batenhorst and Graves (1982) found better pain relief and less total morphine use with patient controlled analgesia compared to intramuscular morphine. Other routes for opioid administration are intramuscular, subcutaneous, intravenous, and oral. The less frequently used routes of administration are sublingual, buccal transdermal, and rectal routes. Edwards and Peters-Asdourian (1993) recommend the continuous subcutaneous infusion by pump as it provides a way of keeping a constant level of pain relief with no peak-level side effects or trough level pain breakthrough.

According to Swerdlow and Schraibman (1993), the administration of opiate drugs results in the interaction of these drugs with specific membrane bound receptors in various regions of the brain. Since the enkephalin-containing systems and the related opiate receptors are concentrated in the areas of the brain involved in the integration and transmission of painful stimuli, administration of opiate drugs leads to a profound suppression of the awareness of painful stimuli. The manner in which the endorphins and morphine interact has not yet been established. These drugs act centrally as opposed to the next category of drugs which act peripherally.

2.2 Non-steroidal Anti-inflammatory Drugs

Individual drugs in the antipyretic class are: aspirin, paracetamol, phenylbutazone, indomethacin, mefenamic acid, ibuprofen, and naproxen. These drugs are of value in relieving pain of musculo-skeletal origin, the neuralgias, pain due to muscle spasticity, and pain due to nerve injury.

These drugs, termed antipyretic analgesics, are considered to exert their main pain-relieving action at the

peripheral sites (Edwards and Peters-Asdourian, 1993). Classically they have been shown to modify nociceptive responses induced by the peptide bradykinine. Activation of the kinin-forming system can be induced by tissue injury. According to Williams (1981), the hyperaemia, oedema, and pain of an inflammatory response, can all be mediated by bradykinine, and the peptide can be identified in inflammatory exudates and synovial fluid from arthritic joints. This class of drugs is known for its efficiency in the relief of mild to moderate pain of a superficial, somatic origin, and where there is evidence of tissue injury. For example, in arthritis, musculo-skeletal injuries and toothache, their analgesic action could be an extension of the anti-inflammatory effect. Edwards and Peters-Asdourian, (1993) mention another drug, namely acetaminophen which is similar to aspirin in analgesic and antipyretic potency as well as the duration of its effects. However, it is less effective than aspirin in the management of pain caused by rheumatoid arthritis and other inflammatory conditions. When it is used as a mild analgesic, it offers some advantages over aspirin. It does not cause cross sensitivity in patients with serious gastro-intestinal side effects or affect platelet function in aspirin allergic patients. It is available as a liquid preparation which may be important to some patients. Williams (1981) also states that there has recently been an upsurge of interest in the role of anti-inflammatory drugs in inhibiting the enzymatic synthesis of prostaglandins from long chain fatty acids. It has been observed that in man, the subdermal infusion of prostaglandins of the E series (PGE1 and PGE2) will produce oedema and a lower pain threshold to artificial stimuli, although spontaneous pain will not occur. However, if bradykinine is infused as well, intense pain will result (Williams, 1978). Experimental studies in dogs (Houde, 1980a)

suggest that bradykinine causes the release of prostaglandins from the spleen. The evidence indicates that prostaglandins of the E series, which are produced at the site of injury, may sensitise the peripheral nerves to other mediators such as bradykinine. In another study, Williams (1978) found that greater amounts of aspirin are required for the suppression of a pain response which has been evoked in spinal rats than in an intact animal. This last study indicates that there is a central component in the analgesic action of non-steroidal anti-inflammatory drugs. Prostaglandins are found in the central nervous system and are considered to be putative transmitters whose production is thought to be influenced by prolactin from the anterior pituitary horn. Pyrogens increase the synthesis of prostaglandins of the E series in the hypothalamus, which is the site of antipyretic action of these drugs.

Thus anti-inflammatory and antipyretic drugs inhibit prostaglandin synthesis and also prevent mental clouding.

2.3 Adjuvants to Analgesics

According to Edwards and Peters-Asdourian (1993), adjuvant medications are drugs that may be combined with analgesics to lessen the experience of pain either by providing additional antinociceptive effects or lessening the impact of pain experience on the patient.

They include the combination of non-opioid analgesics with opioid drugs and also the addition of tricyclic antidepressants and various psychotropic medications. They are effective in the management of anxiety and depression which may co-exist with chronic pain as well as sleep disturbances which may contribute to increases in the nocturnal perception of pain. The tricyclic antidepressants

seem to restore a more normal sleep pattern in patients with chronic pain. Anxiolytics, such as chlorpromazine, haloperidol, hydroxyzine, and diazepam, may be used in cases where anxiety is prominent.

Sound pharmacological principles are important in the management of either acute or chronic pain by drug therapy. Analgesia should be directed where nociception is significant; depressants should be used when affective components dominate. The concept of so-called balanced analgesia is the rationale that combines these approaches because pain is compounded by suffering. This leads us to consider the psychological interventions for pain control.

3. Current Psychological Approaches to the Treatment and Management of Pain

The accumulating research evidence on pain has reduced the likelihood that pain can be explained only by the peripheral anatomic theory, and has indicated the role of central processes in modulating the transmission of pain, hence implicating psychological factors in pain perception. In the researcher's opinion, it is likely that all instances of chronic pain could benefit from some form of psychological understanding. Merskey (1974) regards the psychological approach as helpful in three situations :

- (a) patients with a primary psychological illness in which pain is a symptom;
- (b) primarily organic disorders with secondary emotional changes;
- (c) mixed conditions in which both psychological disorder and organic factors play a causative role in producing pain.

It is clear that the approach to the patient with pain should consider both the nociceptive and psychological components of pain. In recognition of the fact that pain involves more than sensory factors, several different psychological procedures have emerged as augmentation to medically-oriented pain management techniques. While not offering a guarantee that pain can be completely eliminated, these interventions are non-invasive and inexpensive. The principal effect of psychological interventions is on the rational attribute of pain, which in turn modifies the emotional attribute. The higher centres, probably the association areas of the parietal cortex, can override the normal mental and motor activities associated with pain so as to solicit the most appropriate response.

3.1 Placebo Treatments

One of the purposes of this study is to investigate the effectiveness of cognitive-behavioural therapies as compared to reassurance and attention giving. The latter is considered a weak though effective treatment modality as compared to cognitive-behavioural therapies and can thus be regarded as a placebo.

The term placebo refers to those effects caused by people's beliefs or expectations. When a treatment is presented, either in research or in clinical practice, people tend to expect that the treatment will cause an effect. This expectancy according to Feist and Brannon (1988) is capable of causing effects independent of any effect of the treatment itself. People act in ways that they think they should, and their actions are based on their expectation rather than on

any effects of the independent variable. It appears that belief as well as perception of pain, can trigger the release of pain killing endorphins in the brain.

Evans (1985) asserts that the history of pharmacy is the study of the placebo effect. Considering the evidence, he mentions that placebos have been found to cure a remarkable range of disorders, including inhibition of gastric acid secretion, insomnia, headache, fever, common cold, and warts. Placebos have also caused side effects, just as drugs do. According to Shapiro (1970), they have been shown to produce dependence, and their removal may prompt withdrawal symptoms.

The form of the placebo also affects its potency. Shapiro (1970) mentions the various strengths of placebos. He contends that injections are more powerful than pills. Very large and very small pills are perceived as stronger than medium sized ones. Coloured pills are more effective than plain white pills, and capsules produce stronger effects than tablets. Brand name drugs are believed to be better than generics. The ultimate result is that drug companies take advantage of all these perceptions in creating and marketing their products.

Levine, Gordon and Fields (1978), in their study on the effects of placebos, have found that the placebos are capable of more than alleviating imaginary illnesses of hypochondriacs and those who exaggerate their symptoms. According to these authors, the medical effects of placebos are complex and physiologically real, and some placebo treatments are occasionally capable of curing physical symptoms in a variety of medical disorders. The improvements are sometimes the same as those caused by physiologically active drugs. However, Spiro (1990) disputes the extensive curative effect of placebos. According to him, there is no evidence indicating structural improvement due to a placebo. He states:

"placebos help people, not diseases" (p.58). He further asserts that the placebo response is greatest when there is anxiety and severe pain.

The foregoing remarks by Spiro (1990) suggest that symptoms are relieved by placebos but biomedically defined diseases remain unchanged.

The placebo effect presents a problem in evaluating drug effectiveness, since a physiologically inactive substance may produce improvements and even side-effects. Researchers in drug trial studies argue that demonstrations of a drug's effect are not sufficient to indicate effectiveness. They assert:

In order to demonstrate that a drug has specific effects, it is necessary to compare the effects of that drug to the effects of a placebo. The comparison must be made using at least two groups; one that has received a drug and another that has received the placebo. Both groups must have equal expectations concerning the effectiveness of the treatment. In order to create equal expectancy, not only must people receiving each substance be ignorant of who is getting a placebo, they must be unaware of the identity of both substances and must also be unaware or 'blind' as to which group is which. (Levine et al., 1978, p.21)

The arrangement in which neither subjects nor experimenters know about treatment conditions, is called a double-blind design, and is common in drug research.

Does the placebo effect apply also to psychological treatments? Since expectancy is formed by psychological processes, it would seem likely that the placebo effect is a factor in changing behaviour.

Schachter and Singer (1962; 1982) demonstrated the placebo effect in psychology. They performed an experiment in which a drug, epinephrine, was administered to a group of subjects, while another group received a placebo injection in the form of a saline solution.

Half the members of the group who were injected with epinephrine were informed of the effects of the drug. They were told that they might feel *"a bit jittery, notice elevated heart rate, and experience sweaty palms"* (Schachter and Singer, 1962, p.42). The other half of the subjects who received epinephrine were not informed of its effects, leaving them without a means of interpreting the biological effects of epinephrine. Similarly, half the subjects in the placebo group were told that they might feel a bit jittery, notice elevated heart rate, and experience sweaty palms, that is, they received the same information as half the subjects in the epinephrine group. However, the biological effects of the two substances differed. Epinephrine produces the symptoms that were described, but saline does not. In the placebo group, the explanation of physiological effects created an expectancy for those effects.

The results of Schachter and Singer's (1982) experiment according to Zimbardo (1991), demonstrated a strong expectancy effect as well as an effect attributable to the biological effects of epinephrine. The subjects who were injected with the placebo, but led to expect physiological effects, exhibited the high degree of arousal that they had been led to expect. Their reactions were not quite as strong as those of the subjects who had actually received epinephrine but were correctly informed of its effects. According to these authors (Schachter & Singer, 1982), the diminished effect of epinephrine in the non-informed subjects was also a type of expectancy effect. It is the contention of the researcher

that the results of Schachter and Singer's (1962, 1982) experiments can also be explained through labelling theory. Usually when a label is available, people tend to explain their reactions according to the labelled expectation.

According to expectation and physiology, the placebo group that had not been led to expect effects, should not have felt any, and this prediction held true. Placebos are, therefore, a potent factor in psychological research and treatment.

Wilkins (1985) observed that the placebo effect provides a problem in assessing the effectiveness of psychotherapy. The expectancy of improvement from treatment tends to lead to improvement, independent of any specific effects due to treatment. In therapies aimed at changing behaviour, designing an appropriate control group is even more difficult than in drug research. That is, the behavioural equivalent of a "sugar pill" (Wilkins 1985, p.28) is difficult to create. To counteract this problem, several solutions have been used in the form of control groups. The two most common control groups in psychotherapy research are the waiting list control and the attention placebo control. In the first approach, randomly placing those subjects who have been selected to receive therapy on a waiting list equates the controls to the treatment group. The second approach involves meetings with the therapist during which no therapy is administered. This procedure is called an attention placebo control because it incorporates the personal interaction and attention components that may form the basis for the placebo effect in psychotherapy. In order to demonstrate the effectiveness of a behavioural/psychotherapeutic intervention, the treatment effects must be shown to be greater than the placebo effects alone.

Since expectancy is a factor in both psychological/behavioural and medical therapies and since subjects with whom health psychologists work often receive drugs and other medical treatment while undergoing psychotherapy, how valid are the results of psychological research and practice? Blanchard and Andrasik (1982) note that caution is always necessary in assessing the effectiveness of therapy. Research designs should be rigorous and carefully planned because psychological placebos have been found to be as effective as medical placebos. According to Evans (1985), both types of placebos (medical and psychological) have been found to provide about a 35% improvement for a wide variety of conditions.

The researcher feels that although the placebo effect is a contentious issue for research, it may be used advantageously by practising psychologists. The behaviour of the psychologist may increase the subjects' expectations about the effectiveness of therapy, thus prompting placebo improvements. Since improvement is the goal of therapy, any factor that enhances treatment effectiveness is a welcome bonus. Therefore, the underlying causes of improvement are mainly the concern of researchers rather than psychological practitioners. The latter may consider the placebo effect to be a positive factor in their therapies.

What kinds of persons respond to placebos? Not everyone responds positively to placebos. According to Spiro (1990), the individual with a dependent personality with faith in others, particularly in physicians and therapists, and the acquiescent person, anxious to please, is more likely to be relieved. In current terms he/she generates his own endorphins more effectively than someone who is withdrawn and sceptical.

Spiro (1990) describes non-reactors as more rigid and emotionally controlled. They use denial as a defence and are

not psychologically minded, whereas negative reactors tend to have paranoid and masochistic trends. Although Spiro (1990) mentions personalities that respond to placebos, the advice given to us is that we should focus at the entire placebo context rather than at the placebo reactor. Context in this case is what Brody. (1989) has termed the "healing context" (p.42) consisting of patients and therapists. The placebo effect is most likely to occur when the following conditions are optimally met:

- (a) The patient is provided with an explanation for his illness which is consistent with his pre-existing view of the world.
- (b) A group of individuals assuming socially sanctioned caring roles is available to provide emotional support for the patient.
- (c) The healing intervention leads to the patient's acquiring a sense of mastery and control over the illness.

The foregoing analysis suggests that placebos do benefit patients in that the subjective complaints are relieved. Relief depends on the positive interaction between the therapist-physician and patient as well as belief in the inert substance. So far, the literature reviewed is inconsistent in its findings with regard to the curative aspects of placebos as there is no convincing evidence that the disease is cured or changed by placebos.

3.2 Behavioural Techniques

Various behavioural techniques are used in the treatment of chronic pain. According to Thase, Edelman and Hersen (1990), the common feature of the behavioural approaches is

their focus on the present internal and external factors affecting the individual. They use the principles and procedures derived from experimental psychology and they insist on the external verification of theory and procedures. Only techniques that have a wide use are described below.

Operant Conditioning. Operant conditioning, with emphasis on behaviour modification, is designed to help patients in pain reduce the frequency and intensity of pain behaviour. Individual programmes for patients are drawn up by the therapist, using information obtained from the patient, with the following objectives:

- (a) to decrease the frequency of pain behaviour by withdrawing positive reinforcement; and
- (b) to increase the patient's activity level and tolerance level by a programme of well behaviour (Fordyce, 1976; 1990).

To achieve these goals, the psychologist works with the patient, family, and nurse in formulating a programme at home or in the hospital that includes positive reinforcement of patient independence and progression to increasing activity levels.

Baselines of independence and activities of daily living are obtained in each patient's initial pain history assessment. A graded programme to improve these behaviours can be conducted with either outpatients or inpatients. According to Fordyce (1968, 1976, 1990), operant conditioning is also successful in a group situation since it allows the patient to receive positive feedback from other patients. It also allows patients to realise that there are others with similar problems.

Relaxation techniques. Relaxation training is perhaps the simplest and easiest of all psychological interventions (Blanchard & Andrasik, 1985; Ford & Parker, 1990). The therapeutic uses of relaxation methods predate modern psychology, with ancient Egyptians, Hebrews, Tibetans, and others using some form of rhythmic breathing or chanting for the purpose of healing (Aronoff, 1992; Lavery & Taylor, 1985; Syrjala, 1990).

Modern uses of relaxation training are usually traced to Jacobson (1934). Jacobson termed this method progressive relaxation because the patient is trained to relax one muscle group at a time, progressing through the body's entire range of muscles. Another frequently used relaxation technique was developed by Benson, Beary and Carol (1974). This approach was derived from various religious meditative practices, but as used by psychologists, it has no religious meaning. Bensonian relaxation combines muscle relaxation with a quiet environment, comfortable position, a repetitive sound, and/or passive attitude (Benson et al., 1974.) Participants usually sit with eyes closed and muscles relaxed. They then focus attention on their breathing and repeat silently a sound such as 'om' or 'one' with each breath for about 20 minutes. Repetition of the single word prevents distracting thoughts and sustains muscle relaxation (Lavery & Taylor, 1985; Syrjala, 1990).

Another technique of relaxation was developed by Rimm and Masters (1979) and is termed deep muscle relaxation (Lavery & Taylor, 1985). It is similar to Jacobson's (1978) progressive muscle relaxation in that the patient has to progressively tense and relax one muscle group at a time, progressing through the body's entire range of muscles.

Autogenic phrases (Luthe, 1963; Ross, 1985; Syrjala, 1990) is a technique that concentrates on breathing and

silently repeating to oneself relaxing statements, while practising deep muscle relaxation starting with the forehead and ending with the legs and toes.

There is a growing body of evidence that deep muscle relaxation is an effective treatment of pain (Linton, 1982; Turner & Chapman, 1982a; Domar, Friedman & Benson, 1993). Grzesiak (1977) studied patients with spinal cord injury and used relaxation consisting of three components:

- (a) a sequence of relaxation exercises to achieve respiratory and muscular relaxation;
- (b) instructing the patient to let his mind drift freely and to think of peaceful images; and
- (c) telling the patient to focus attention on a relaxing memory.

Measures of the depth of relaxation and estimates of pain were made. In the analysis of the results, relaxation was found to be effective in modifying the pain. Other investigators (Bailey, 1985; Fisher & Reasen, 1988; Warfield, 1993) attest to the effectiveness of relaxation in ameliorating pain.

Meditative practices, such as yoga, are similar to relaxation and have been an important part of Indian culture. Similar techniques have been described in other cultures such as Japan and China (Blanchard, et al., 1982; Domar, et al., 1993).

According to Merin, Kowatch and Wade (1989), regular practice of yoga and other transcendental techniques like Zen, has been reported to yield unique physiological, psychological, medical, and sociological effects including remediation of chronic pain, improvements in sleep, increase in mobility, and reductions in medication requirements and in

bleeding episodes in haemophilic patients (Domar et al., 1993). The latter authors mention the carry-over effects of relaxation. They maintain that the changes in sympathetic reactivity have carry-over effects that last longer than the actual period during which the relaxation exercise is done. This is important and helpful in the treatment of patients with chronic pain because the benefits are not limited to the exercise periods but instead can last throughout the day.

Other investigators (Noyes 1981; Turner & Chapman, 1982a), also found relaxation to be effective in the treatment of chronic pain because the patient's attention is shifted away from the pain, producing attentional states that are incompatible with pain.

Progressive relaxation, autogenic phrases, and Bensonian relaxation have been used successfully to help patients cope with a number of stress related problems, including headache, cancer, and postoperative pain (Lavery & Taylor, 1985).

One may well ask whether it is necessary to have all these different relaxation techniques. The answer to this question is in the affirmative. Patients differ and some are unable to do Jacobson's (1938) progressive relaxation or Benson et al.'s (1974) relaxation technique effectively. These patients may benefit from using only autogenic phrases, for example.

In conclusion relaxation techniques appear to be efficient and pragmatic. Instruction in the various techniques is relatively simple, the techniques can be learned easily, and transfer of practice from the hospital to home environment does not seem to present any problem.

3.3 Biofeedback

Biofeedback is widely used by health psychologists in the treatment of pain, cardiovascular disorders, ulcers, asthma, rheumatoid arthritis, and to a limited extent, in endocrine disorders like hyperthyroidism (Nigl, 1984). It is a more circumscribed approach than relaxation or medication (Domar et al., 1993).

Biofeedback is a technique that can be considered in terms of operant conditioning principles, in that a person is rewarded each time a certain behaviour is shown. The important distinction is that this required behaviour is internal rather than external. The internal behaviour is monitored and rewards are given to people via lights or tones which reflect changes in the internal behaviour. In this sense then, biofeedback provides a way of controlling certain internal states.

According to Nigl (1984), during the late 1960's a number of researchers began to explore the possibility of controlling biological processes traditionally believed to be beyond conscious control. In the developing area of machine intelligence, the importance of information feedback was discovered. In psychology, researchers had already investigated the possibility of learning to control visceral responses. In rehabilitation medicine, researchers explored the technique of using electronic signals to provide feedback about patients' muscle activity. These areas of research culminated in the development of biofeedback, the process of providing feedback information about the states of one's biological system.

Experiments by Miller (1969) indicated that biofeedback made possible the control of some otherwise automatic functions. Miller reported a series of experiments in which

he had altered the levels of animals' visceral responses through reinforcement. Subjects were rewarded for raising and others for lowering heart rate. Within a few hours, significant differences in heart rate appeared. Salivation, kidney function, intestinal contractions, and blood pressure were also changed as a response to training. Miller used rats and dogs as subjects, and expressed the belief that humans could also learn to control their visceral responses.

Experiments by other investigators (Brown, 1970; Kamiya, 1969) proved Miller correct. Both Kamiya and Brown reported that humans are capable of learning to control brainwaves using electroencephalogram (EEG) biofeedback. A variety of biofeedback machines were soon commercially available. Muscle tension, skin temperature, blood pressure, heart rate, gastric motility, skin conductance, and many other physiological measures have the potential to be used in biofeedback training.

During biofeedback, biological responses are measured by various electronic instruments. Feedback to the patient is normally supplied by auditory, tactile or visual signals, and all three types are commonly used. The machine may bleep, flash a light or deflect a dial, but some signal is supplied, depending on the measurement of the biological response being monitored. According to various investigators (Trifeletti, 1984; Turk, Meichenbaum & Berman, 1979; Turk et al., 1983), the intent is to provide patients with information that will enable them to control voluntarily an aspect of their physiology that purportedly is linked causally to the pathogenesis of a given disease (Domar et al., 1993). The most commonly used biofeedback equipment in the treatment of pain will now be discussed.

Electromyography (EMG). The primary use of EMG biofeedback in the treatment of pain has been for muscle

tension pain such as headache, back pain, and myofacial pain (Epstein & Abel, 1977). Since the measuring electrodes may be placed over any muscle group, it is the contention of the researcher that EMG biofeedback can be used to monitor muscle tension in any part of the body.

The effectiveness of EMG biofeedback in the treatment of muscle headache has been studied extensively. Reviews of studies (Blanchard & Epstein, 1977; Domar et al., 1993; Jessup, 1984; Neuchterlein & Holroyd, 1980; Nigl, 1984) demonstrated improvement after biofeedback training.

However, there is controversy surrounding the possible lack of specificity of biofeedback therapy, which has direct implications for assessing its effectiveness. Epstein and Abel (1977) found that a number of subjects showed improvement of headache symptoms, but were unable to lower EMG. An even more troubling result has been reported by Andrasik and Holroyd (1980a), who performed a study using false biofeedback. All groups were told that the biofeedback they were to receive had a goal of lowering muscle tension, but one group received feedback for raising, one for lowering, and one for producing no change in forehead muscle tension. All groups displayed reductions in headache, thus suggesting the changes following biofeedback training may be due to the placebo effect. Pseudo-biofeedback also has been as effective as real biofeedback in the treatment of chronic pain, leading researchers (Jessup, 1984; Zitman, 1983) to conclude that the beneficial effects of biofeedback stem from non-specific factors (Domar et al., 1993). In the face of such results, it is difficult to maintain that EMG biofeedback is a specific treatment for tension headache and chronic pain. Despite this, quite a number of studies as already indicated demonstrate improvement after EMG biofeedback.

Considering the prevalence of low back pain, biofeedback has not been used frequently for this pain syndrome. Studies reviewed by the researcher, indicate that biofeedback is rarely used as the only treatment mode. Other behavioural techniques and often drugs are used in a comprehensive program of pain management.

Nigl (1984) mentions a common shortcoming of biofeedback. According to him, many biofeedback studies include few subjects, often with varying pain symptoms. These problems arise in all areas of biofeedback, but with the small number of studies done on low back pain, firm conclusions are premature.

Two other studies (Bush, Ditto & Feuerstein, 1985; Sargent, Solbach, Coyne, Spohn & Segerson, 1986), failed to find an advantage of EMG biofeedback over a non-specific treatment and a placebo treatment. It must be stressed that although biofeedback has been found to be non-specific in relation to low back pain, this non-specificity could be compounded by the presence of other facets of treatment, such as relaxation, suggestion, and expectancy of relief from pain. As biofeedback is more expensive than most other behavioural treatments for pain, it should have a demonstrable advantage over the other types of behavioural treatments, otherwise its use is not warranted. Another variant of biofeedback, namely temperature biofeedback, will now be discussed.

Temperature biofeedback. The main use of thermal or temperature biofeedback has been in the treatment of migraine headache (Nigl, 1984). The measurement of skin temperature at the fingers is seen as an indirect index of vasoconstriction in the head. Skin temperature has been found to vary with vasoconstriction, and migraine headache is believed to be a disorder of vasoconstriction. Nigl (1984) further mentions

that a direct measurement of blood flow to the head offers little advantage.

Temperature biofeedback has been shown in many studies to decrease migraine headache pain (Blanchard & Epstein, 1977; Nigl, 1984; Olton & Noonberg, 1980). Improvements are most often seen in reduced frequency of headache, shorter duration, and lower intensity. However, the complications that prevent clear interpretation of EMG biofeedback for tension headache also make interpretation of temperature biofeedback studies difficult.

One large uncontrolled study of combined migraine and tension headache patients demonstrated the long-term effectiveness of combined biofeedback and relaxation training (Stroebe, Ford, Strong & Szarek, 1981). Sixty of the 134 patients were moderately improved at a two year follow-up after a treatment regimen combining frontal EMG, temperature biofeedback and several kinds of relaxation (Bonica, 1980).

Mathew (1982, 1988) reported a similar combined thermal biofeedback and relaxation treatment for combined migraine and tension headache. He found this treatment to be superior to analgesics and ergotamines (Bonica, 1990). Another biofeedback study produced seemingly paradoxical results, for example, hand warming and cooling were equally effective in treating headaches (Jessup, 1984).

Blanchard, et al. (1982), and recently Blanchard and Ahles (1990) reported studies on headache pain that offered clearer support for temperature biofeedback. This study examined patients with combined migraine and tension headache complaints. After a four-week baseline, ten weeks of relaxation training took place. All groups, especially the tension headache group, showed significant improvement. Those patients who had not improved after relaxation training were given 12 weeks of either EMG or temperature biofeedback. The

biofeedback training led to further significant reductions of headache for all who received it. Blanchard et al. (1982) summarised the advantages of biofeedback by saying, "For patients with either pure migraine headache or, especially, combined migraine and tension headache, thermal biofeedback apparently adds a significant increment to the effects obtainable through relaxation therapy alone" (p.572).

The studies by Blanchard et al. (1982) and Blanchard and Ahles (1990) also suggest that headache patients might best be treated by tailoring treatment programs, rather than by initially using all components of a complex pain management program. Relaxation training may be sufficient for many patients, and the less expensive techniques should be tried first, and given a chance to work. However, temperature biofeedback can be effective for some patients, including those for whom other techniques have failed.

A summary of the effectiveness of biofeedback treatments in managing headache is given in Table 4.1.

Table 4.1

Summary of Studies on Various Treatments for Headache Pain

	End of treatment		Follow up	
	Percentage improved	Number of studies	Percentage improved	Number of studies
EMG biofeedback alone	60,9	12	57,5	6
Relaxation alone	59,2	9	70,0	4
EMG plus relaxation	58,8	6	57,3	3
Psychological placebo	35,3	7	51,0	4
Medication placebo	34,8	8	38,0	2
Headache monitoring alone	4,5	6	20,7	4

Note: From "Migraine and Tension Headache: A Meta-analytic Review" by Blanchard, Andrasik, Ahles, Teders & O'Keefe (1980), Behavior Therapy, 11, pp.613-631.

From the above table it is noted that the average improvement shown for EMG biofeedback is about 60%. Although the rate of improvement is better than the 35% found in placebo groups and considerably higher than the improvement noted for those who merely monitored their headaches, it is about the same improvement percentage as that of subjects who received only relaxation training. The effects of biofeedback seem to remain about the same

during follow up, while the percentage of improvement for relaxation training increased slightly. It must be noted that combining EMG biofeedback with relaxation training does not increase the percentage of headache patients who show improvement. These findings suggest that EMG biofeedback may have some value in treating headache pain, but it is no more effective than simple relaxation. Critics of biofeedback are cautious in proclaiming its efficacy in the management of pain. Roberts (1985) is of the opinion that the efficacy of biofeedback in pain management seems less well grounded theoretically, and hence its lack of empirical substantiations is particularly significant. Domar and colleagues (1993) mention the lack of consistency in biofeedback research and ascribe it to:

- (a) the study of many different pain syndromes,
- (b) variations in pain history,
- (c) a lack of collection of baseline rates of pain,
- (d) different biofeedback procedures,
- (e) methodological problems such as lack of control conditions, biases in subject selection, lack of evaluation of experimenter attention and inadequate follow up.

In conclusion, there remain many unknowns about the efficacy of biofeedback in the treatment of pain. The evidence in support of using biofeedback combined with relaxation for the treatment of pain is not fully convincing, resting mainly on case studies and poorly controlled research.

3.4 Hypnosis

The purpose of hypnosis in pain therapy is to manipulate the experience of pain directly by means of suggestion. There has been much discussion about the nature of hypnosis. Some researchers (Hilgard, 1975; Hilgard & Hilgard, 1975) have thought hypnosis to be an altered state of consciousness or trance which is distinct from conscious experience. Others (Fisher & Jameson, 1988; Spiro, 1990) have argued that it is an example of complete or almost complete absorption in a particular role and conformity with the expectations associated with that role. The subject has faith in the hypnotist's power to influence him and is prepared to accept such influence to the extent that not only his outward behaviour but also his subjective experience will be modified.

Barber (1980, 1982, 1984) views hypnosis as a more generalised trait, or a relatively permanent characteristic of people who respond well to suggestion. To Hilgard (1975), the process of induction, that is, being placed in a hypnotic state, is central to hypnosis. Barber (1984), however, rejects the notion that induction is necessary, and holds that the suggestive procedures can be just as effective without the subject entering into a trance-like state. These investigators (Barber, 1984; Price & Barber, 1980) are sceptical and believe that hypno-suggestive procedures may or may not bring about drowsiness, relaxation, closed eyes and the belief that one is being hypnotised.

According to Hilgard and Hilgard (1975), hypnotic suggestion has been used for pain relief in surgery, dentistry, terminal care, and obstetrics. These researchers are of the opinion that verbal reports of pain

are affected by hypnosis, but not involuntary physical responses such as heart rate or galvanic skin responses. This indicates that there is still some sense in which the pain is present, and it has been suggested (Orne, 1980; Sheehan & Conkey, 1982) that the absence of the subjective experience of pain under hypnosis is a form of dissociation, with pain being processed at a preconscious, but not at a conscious level.

Hilgard and Hilgard (1975), and Hilgard (1987) further assert that hypnosis is used not only for preventing or alleviating pain but also in placebo drug trials. While the subject is under hypnosis, a pharmacologically inert substance is administered to him and a suggestion is made to the subject about the potency of the analgesia, thereby creating the expectation of pain relief. It is estimated that such placebo treatments can alleviate surgical pain in about one third of patients. The effectiveness of this kind of placebo will vary with the situation in which it is administered. For example, laboratory studies as compared to clinical studies have been found to produce lower pain relief estimates.

Other factors affecting the efficacy of hypnosis are: the situation in which it is administered, the status and manner of the person who administers it, since effectiveness will depend on expectations, and the individual to whom it is administered. The latter point is of importance since people can be grouped as either reactors or non-reactors. The former are more responsive to suggestion (hypnotisable) and placebos, but may be less differentially responsive to active drugs, whereas the latter group is less open to suggestion.

Despite their debate over the necessity of induction, researchers (Barber, 1984; Hilgard, 1975; Hilgard &

Hilgard, 1975) agree that hypnosis or hypno-suggestive procedures are important clinical tools, especially for the control of pain. They also agree that not every person can learn to be hypnotised and that even after intensive training, most subjects are only slightly more responsive than they were prior to training. People who originally had strong resistance to hypnosis, make the most gains simply because they learn through training that there is nothing to fear.

Regarding the percentage of people who are susceptible to hypnosis, Barber (1984) and Hilgard (1987) agree that suggestibility is widely distributed among the American population, almost following a normal, bell-shaped curve. For this reason, clinicians need to determine the level of suggestibility of their patients prior to employing hypnosis as an analgesic. Barber (1984) contends that, while every professional who treats pain should be able to use hypno-suggestive procedures, not every patient is a good candidate for this treatment, mainly because of patient factors.

More recent research has suggested that virtually any motivated person can gain some relief from pain through hypnotic treatment. Greater emphasis is placed on active participation by the patient, through greater utilisation of self-hypnosis (Barber, 1990; Friction & Roth, 1985). Pain reduction according to Barber (1990), involves a change in either the sensory discriminative component or the motivational affective component.

Numerous case studies and laboratory experiments attest to the potency of hypnosis in the control of pain (Barber, 1982, 1990; Hilgard, 1987; Turner & Chapman, 1982b). Barber (1982) reviewed the research and found some evidence that hypnosis ameliorates pain. According to

Barber (1984, 1990), the types of pain that have been successfully controlled through hypnotic procedures include nearly every kind of pain, for example, childbirth, headache, cancer pain, low back pain, arthritis, and many others. The important variable, it would seem, is not the type of pain but the type of patient.

Despite the attested potency of hypnosis in the control of pain, there have been few controlled studies examining its efficacy. Edelson and Fitzpatrick (1989) assert that there is a paucity of clinical research, the research that has been conducted is poor methodologically and uses mainly case histories, no control groups and few subjects. Domar et al., (1993) are in agreement with Edelson and Fitzpatrick (1989) and remark that there have been almost no controlled studies that compare hypnosis with a credible control group except the study by Elton, Burrows and Stanley (1980).

The various cognitive techniques that are used in the management of pain and other psychological problems will now be reviewed.

3.5 Cognitive Strategies

Cognitive therapy attempts to modify the underlying experience of pain rather than the behaviours associated with pain. Cognitive strategies may either direct attention away from pain or restructure the experience so that it is no longer distressing. According to Brown (1984), the sufferer may be instructed to counter the pain when it occurs by attending to distractions in the environment rather than to his sensations, or by

constructing fantasies and concentrating on thoughts which are incompatible with pain, that is, by using imagery.

Imaginal coping strategies. Beers and Karoly (1979) assert that "by means of imagery the sufferer may visualise healing resources, communicate with their pain or detach themselves from it" (p.179). Imagery has been used in two major ways in health psychology. Firstly, it has been employed as a specific means of attention diversion with pain patients and other stressed populations (McCaffery 1979a; Meichenbaum, 1978; Turk et al., 1983). Secondly, it has been used to provide patients with an opportunity to rehearse coping skills or to engage in what is known as the work of worrying (Brenitz, 1971; Janis, 1958; Marmor, 1958). By means of imagery or role playing, the patient can rehearse coping efforts in the training sessions that approximate the stressful situation. The general format for the imagery is derived from Wolpe's (1958) systematic desensitisation. The patient and therapist collaboratively generate a hierarchy of scenes from least to most stressful. As used in stress inoculation training, the patient is usually asked to imagine coping with these stressful situations while relaxed. The therapist helps the patient to visualise the situations as clearly and vividly as possible, noting details, sensory experiences, thoughts, and feelings she has or would have in that situation.

Attempts have also been made to control stressful responses through the use of positive images unrelated to stress or pain. For example, scenes can be imagined relating to themes like sunshine, rain, the sea, and other aspects of nature that are relaxing. Thus an effort is made by the patient to focus attention on such an image or

scene, at the same time trying not to be distracted by negative thoughts.

There have been many attempts to study the efficacy of imagery coping strategies in laboratory experiments, but the results have been inconsistent. Many studies (Beers & Karoly, 1979; Chaves & Barber, 1974; Grimm & Kanfer, 1976; Spanos, Brown, Jones & Horner, 1981; Weisenberg, 1980) have found imaginal coping strategies to be effective in attenuating experimentally induced pain, while other researchers have failed to replicate the results (Maier & Laudenslager, 1985).

Failure of some studies to demonstrate the positive effect may be owing to the difficulty of ensuring that subjects follow the instructions faithfully. It was found (Maier & Laudenslager, 1985) that the experimental group sometimes rejected the strategy suggested to them and substituted their own, while the control group may spontaneously employ strategies even though instructed not to do so. Meichenbaum (1985) encouraged patients to substitute his imaginal scenes if they found theirs to be more stress reducing. Evidence from research (Bakal, Demjeh & Kaganov, 1981; Holroyd, Andrasik & Westbrook, 1977; Langer, Janis & Wolfer, 1975; Levendusky & Pankratz, 1975) suggests that imaginal techniques in general play an important role in coping with pain, but present considerable methodological difficulties in establishing the effectiveness of a given technique. With the exception of Rybenstein-Blinchek (1979), all of the studies employed a treatment regime of which cognitive strategies formed only a part. Shapiro (1985) reviewed the research and found consistent positive results: imagery was shown to be effective in reducing stress, anxiety, phobias, pain, and hypertension.

Rational emotive therapy. Although not directly related to the management of pain as such, rational emotive therapy is perhaps the earliest example of therapy based on cognitive learning. The therapy was formulated by Ellis (1962). According to Ellis, an analysis of the person's problem behaviour may reveal irrational thoughts that underlie such behaviour. Once irrational cognitions have been identified, the therapist actively tries to eliminate or change them into more rational cognitions. Ellis believes that humans have the ability to use logic and rationality to deal with their problems. His therapy then is based on the assumption that people possess the ability to examine their beliefs and thoughts logically and to alter them when necessary.

Ellis (1986) has also incorporated techniques oriented toward changing overt behaviour. For example, he often gives patients homework assignments in which they must translate their new cognitions into changes in behaviour. However, rational emotive therapy is basically cognitive, with the therapy sessions oriented towards the analysis and adjustment of the patients' belief system.

3.6 Stress Inoculation Training (SIT)

Another type of therapy that emphasises cognitive factors and is directly applied to the management of pain, is called stress inoculation. This therapy was devised by Meichenbaum and Cameron (1983) and is used to treat a variety of problems related to stress and pain. The process of stress inoculation includes three stages: (1) conceptualisation, (2) skills rehearsal, and (3) application. The conceptualisation stage is a cognitive

intervention in which the therapist works with the client to gather information on the patient and to identify the nature of the patient's pain problem and its role in the patient's life situation, history of prior treatment as well as current treatment, the use of medication, engagement in exercise, and vocational, marital and social history. The nature of the pain management programme is explained to clarify misconceptions and to provide a conceptualisation of pain based on the gate-control theory. The skills rehearsal stage involves both educational and behavioural components in order to enhance the patient's repertoire of coping skills. In the application stage the client puts into practice the cognitive changes achieved in the two previous stages. Although stress inoculation employs techniques oriented towards overt behaviour, a change in cognition is the essential feature of the therapy.

Stress-inoculation training has been applied to a wide variety of problems in clinical and non-clinical populations. Examples include general pain (Turk et al., 1983); cancer pain in both adults and children (Moore & Altmaier, 1981; Weisman, Worden & Sobel, 1980); rheumatoid arthritis (Randich, 1982); burns (Wernick, 1983); essential hypertension (Jorgensen, Houston & Zurawski, 1981); dysmenorrhea (Quillen & Denny, 1982); and dental fear and pain (Klepac, Hague, Dowling & McDonald, 1981). For non-clinical populations it has been successfully applied to rape victims (Veronen & Kilpatrick, 1983) and victims of terrorist attacks (Ayalon, 1983).

Stress-inoculation training assumes that cognitions and emotions are the basis for behaviour. Like rational emotive therapy, it intervenes in the cognitive process in an attempt to bring about behaviour changes. In addition, both employ behavioural follow through procedures in order

to ensure that the patient's cognitive learning is translated into behaviour.

Several controlled studies of stress-inoculation techniques have been conducted with chronic headache and these have generally found positive effects, namely a decrease in both patient self-report of pain and pain behaviours (Anderson, Lawrence & Olson, 1981; Bakal et al., 1981; Holroyd & Andrasik, 1982; Kremsdorf, Kochanowicz & Costell, 1981; Mitchell & White, 1977). Turner and Chapman. (1982a) found continued improvement in chronic low back pain patients following stress-inoculating treatments, which supports the contention that these treatments, with their emphasis on fostering patients' acquisition and independent utilisation of skills, may have greater potential for long-term maintenance of gains than do traditional therapies (Bonica, 1990).

Pain associated with cancer represents a major clinical problem, affecting about half of the patients in the intermediate stages of the disease (Bonica, 1985; Daut, Cleeland & Flanary 1983) and about 70% of those with advanced cancer (Bonica 1985). Daut, Cleeland & Flanary (1983) are concerned about the limited research being undertaken and they highlight their concern: *"Despite its prevalence, cancer pain is undeveloped in terms of systematic research aimed at defining its parameters and effective treatments"* (p.1). However, during the past decade there has been an increasing recognition of the role that cognitive and emotional factors play in the experience of cancer pain and distress and this has fostered interest in the application of stress inoculation for these problems (Ahles, Ruckdeschel & Blanchard 1984). Controlled studies have been conducted in stress-inoculation intervention aimed at decreasing nausea, vomiting and emotional distress

associated with chemotherapy, though these have not focused on pain *per se* (Lyles, Burish, Krozely & Oldham, 1982). They found that a combination of imagery and relaxation resulted in significantly lowered anxiety, nausea, and physiological arousal during chemotherapy and significantly less nausea afterwards than either therapist contact with no training and no intervention. Such encouraging results support the potential of stress-inoculation treatments with malignant disease. Furthermore, Domar (1990) and Warfield (1993) report that stress-inoculation as well as other cognitive-behavioural treatments have been demonstrated to decrease self reported pain in chronic pain syndromes.

Cognitive-behavioural therapy has been criticised (Beidel & Turner, 1986; Kuiper & McDonald, 1983) as adding nothing new to the behavioural model. These critiques argue that cognitions are merely private events subject to the same principles of operant conditioning that govern overt behaviour. From the perspective of health psychology, however, cognitive-behavioural therapies must be evaluated against a more practical criterion, that is, do they work? Answering this question is difficult, due to the diverse nature of therapeutic programmes that have been placed under the rubric of cognitive-behavioural therapy. According to Feist and Brannon (1988), cognitive programmes may sometimes use a broad range of strategies, including relaxation training, biofeedback, behaviour modification, systematic desensitisation, and other techniques that are not strictly cognitive. Also cognitive-behavioural strategies are not always used in the same way by therapists and researchers. For example, Andrasik, Blanchard and Edlund (1985) reviewed 12 studies that had investigated the effectiveness of cognitive-behavioural therapies for headaches and found that no one cognitive

procedure was employed in the same manner across different research settings.

Despite these problems, it is the researcher's contention that cognitive-behavioural therapies are appropriate for a variety of health related problems, as already mentioned in the previous pages. Their focus is broader than the strictly behavioural interventions discussed earlier, all of which are primarily symptom orientated. Instead of concentrating on a specific behaviour or behaviours, cognitive therapies take into account cognitive, affective, sensory, and behavioural components of a particular disorder. In other words, the goal of cognitive-behavioural therapies is not limited to a specific target behaviour such as pain reduction or pain management, stress reduction or establishing healthy eating habits. Meichenbaum (1977) and Ellis (1986) have both emphasised the need for general therapies that look at antecedent stressors such as depression, anxiety, feelings of self-confidence, and other global aspects of personal life. Cognitive-behavioural therapies (Feist & Brannon, 1988; Turner & Romano, 1992) rate higher on this criterion than do hypnosis, relaxation training, biofeedback or behaviour modification.

Turner and Romano (1992) indicate that the data are generally unavailable on particular factors that would predict a positive or negative response to cognitive behavioural therapies for pain. A potential limitation in cases of acute pain is suggested by preliminary studies showing that cognitive-behavioural strategies may be more effective in reducing anxiety than in decreasing pain *per se*, but clarification of this issue awaits further research. In chronic pain complicated by factors such as drug dependence, environmental reinforcers, or decrease in

activities, cognitive behavioural techniques alone may be insufficient to produce changes in these patterns.

3.7 Interactional Model

A number of writers (Fordyce, 1976; Sternbach, 1974; Szasz, 1968) have called attention to the importance of the doctor-patient relationship in the treatment of pain. As this is an overly medical view, it would be more appropriate to use the phrase therapist-client relationship. These three writers have pointed to motives which can cause the patient to resist abandoning his symptoms, and show how the doctor/therapist may play a complementary role which facilitates these efforts. The patient who wishes to maintain his invalid status will have this claim legitimised by the therapist who continues to treat him as though he were ill. Another common theme of doctor-patient interaction according to Szasz (1968), is an attempt by the patient to place responsibility for the outcome of treatment on the therapist/doctor's shoulders, with the latter accepting this responsibility because of an eagerness to help and the reluctance to admit to the limitations of his professional skills. Such attitudes have been criticised as mal-adaptive.

It has been argued (Fordyce, 1976; Lipp, 1977; Sternbach, 1974; Szasz, 1968) that doctors should discourage passivity and helplessness, but should cultivate a co-operative and problem solving orientated relationship in which the patient takes an active role. This involves confronting any undesirable attitudes towards pain, and emphasising that the outcome of treatment is determined by

the patient's own efforts as well as by what can be done for him. Hendler, Long and Wise (1982) state:

Careful examination of the situation from a behavioural-interactional viewpoint shows that both doctor and patient must make difficult, and sometimes impossible changes to break out of the vicious self propagating circle of illness behaviour. They must decrease, modify and stop altogether some behaviours or actions they have been doing that give immediate reward or enjoyment. (pp.212-213)

All the writers mentioned above as well as Spiro (1990) argue that sympathy and reassurance can reinforce pain behaviour and can foster a dependency which discourages self-help and the development of strategies for coping. It is suggested by the researcher that the total care of the pain patient should be concerned not only with the relief of pain but also with the psychological stress to which pain can give rise. Usually the distress of the person in pain will in itself be distressing to those around him and this can lead to avoidance or a reluctance to become practically and emotionally involved with the patient. This results in isolating the patient. Hence, it is important to adopt a balanced approach in the care and management of the person in pain, helping the patient to help herself/himself, reducing his/her anxiety and preventing despair.

3.8 Psychological Preparation for Pain

The occurrence of pain may sometimes be anticipated before the event, for example, if a patient is scheduled

for an unpleasant medical examination. A number of laboratory studies have investigated "informational control" (Johnson, Rice, Fuller & Endress, 1978; Turk, 1975) and have found that the stressfulness of electric shock and similarly noxious stimuli is reduced if the subjects are made aware in advance of the timing and intensity of these and the fact that there is no danger of actual injury. According to Turk (1982), information control involves the provision of information which enables the individual to predict accurately what will happen in the situation and the nature of his experience, and instructions in strategies which may be employed to maximize the chances for successful coping. (p.48)

The training procedure is quite complex. First, the subjects are given information on the nature of pain. It is not considered essential that the explanation be theoretically valid, but merely that it provides a framework within which the experience may be conceptualised and the recommendations for coping presented.

In the second stage of the procedure, the subjects are trained to relax physically and mentally. They are also provided with a selection of cognitive strategies with which to confront and control pain. These strategies are mainly cognitive-control strategies, like imagery coupled with relaxation, and other techniques which fall within the ambit of cognitive-behavioural therapy. In this context, however, strategies are presented as a "package" from which the subjects will select those suited to their personal needs. At this stage they will also be asked to generate feedback statements that can later be used to foster a feeling of control while in the painful situation and provide self reinforcement.

The final stage is that of rehearsal, where the subjects imagine the painful situation and their reactions, and subsequently play the role of a teacher instructing someone else in the procedure.

Laboratory studies show this training to increase pain endurance considerably in a cold pressor task (Johnson, 1973; Staub & Kellert, 1972). The effectiveness of information control in counteracting the distress from noxious stimuli has also been demonstrated.

Some of the most influential studies in this area have been those conducted by Johnson (1975). Male subjects were exposed to ischaemic pain in the laboratory and were either told what physical sensations (sensory information) they might expect as a result of the procedure, or the procedure itself was described without elaborating on the sensations associated with it. It was found that the former preparation reduced distress, but the latter was ineffective in comparison with a control group. The intensity of the sensations experienced by the two information groups was the same, and the results could not be accounted for by group differences in either the degree of attention paid to these sensations or the anticipation of possible harm. It seemed then, that this effect must have been due to the expectations held by subjects about what they were to experience, with more accurate expectations being associated with lower levels of distress.

Leventhal, Brown, Schaham and Enquist (1979) conducted three studies which supported the hypothesis that providing information about procedures and sensations reduces subjective distress. In their first study, using a cold pressor task, they found that subjective distress was reduced significantly by the provision of information about

the sensations rather than providing information about the cold pressor procedure. They also found that a broad approach providing both information about procedures and the sensations eliminated the positive effects of informing them about the expected sensations only. Leventhal et al. (1979) interpreted their results in the light of the information processing of pain perception. They proposed that noxious stimuli can be processed either as an objective code for their concrete sensory meaning, or as an emotional code, for their anticipatory threat value. They further asserted that pain memories which are acquired through a history of experiences with painful stimuli, can be integrated with the sensory and reactive components of current noxious stimuli to further increase the threat. In other words, current bouts of pain may trigger the memory of earlier pain and the two (memory and sensation) become fused and make the current experience more threatening. It follows, then, that the anxieties generated by the perception of pain may, in turn, intensify the pain.

The effects of psychological preparation have also been extensively studied within the context of surgery. The kinds of preparation attempted in these studies have varied quite widely. Egbert, Battit, Welch and Bartlett (1964), in their study on the reduction of post-operative pain by encouragement and instruction of patients to reduce subjective distress, found that psychological preparation reduced distress and improved post-operative recovery. Langer et al. (1975) also applied these techniques to surgical patients. They were able to replicate the results. One group of patients was given examples of how attention to, and perceptions of, a noxious event can influence how the event is experienced. They were taught to focus on the positive aspects (e.g., the improvement in

health) that the treatment would bring. Compared to patients who were not given such instructions, the experimental group had fewer requests for sedatives, spent less time in hospital (an average of 5,6 days compared to 7,6 days for the comparison group), and showed less anxiety and greater ability to cope, as evaluated by nurses. It therefore seems that psychological preparation for pain is effective in real-life situations as well as in the laboratory.

The effects of preoperative information and instructions have also been studied by Wells (1982). He compared two techniques, namely relaxation training coupled with breathing techniques, and sensory and procedural information. Compared to patients who were given instructions in relaxation and breathing techniques, the sensory and procedural information group rated distress post-operatively as higher. A more recent study was conducted by Picket and Clum (1992) who compared four groups of patients post-operatively using cognitive distraction training comprising different imagined surgery scenes followed by pleasant images; relaxation training; relaxation plus information; and no treatment controls. The results indicate that cognitive distraction training had lower "worst pain" and anxiety ratings post-operatively compared with the no treatment control group. No differences were found in medication and the McGill Pain Questionnaire scores.

On the whole positive effects have been associated with training in various cognitive behavioural procedures before surgery. Mixed results regarding the benefits of preparatory information with painful medical procedures have been reported. The few published controlled studies (Kendall, 1979; Wernick, Jaremko & Taylor, 1981; Tan &

Roser, 1982) have not found this technique to affect pain felt during the procedure, although there was decreased anxiety.

The effects of preparatory information and cognitive behavioural techniques have also been studied within the context of childbirth. Reviews by Tan and Roser (1982) and Turner and Romano (1990) concluded that prepared childbirth techniques including relaxation, attention focusing, distraction, controlled breathing, and education (information provision) generally are associated with increased maternal cooperation with the physician during labour and delivery, decreased use of analgesics and increased maternal satisfaction with the childbirth experience. Whether or not childbirth preparation reduces pain is unclear.

Some investigators have reported that parturients who received such training rated their labour pain much less (Norr, 1977), and some slightly less than those who had not received training (Melzack, Taenzer, Feldman & Kinch, 1981; 1984). Other studies (Davenport-Slack & Boylan, 1974; Nettelblatt, Fagerstrom & Uddenberg, 1976) found no relationship.

Criticism of the aforementioned studies comes from Turner and Romano, (1990), who state that the problem in evaluating the research stems from the lack of details in published reports about the content of the interventions, especially the rationale and instructions given to patients. This makes it difficult to evaluate the adequacy of the treatments and to compare results across studies. The frequent use of only one session to provide the intervention also raises the question of whether this is sufficient time for an adequate test of the treatment (Bonica, 1990).

The question of whether cognitive behavioural training procedures produce greater effects than information provision alone, has not been resolved. There are few controlled studies of cognitive behavioural techniques for post-operative pain, and even fewer have employed self report measures of pain *per se* as opposed to ratings of anxiety or distress.

4. Conclusion

The techniques discussed in this section are aimed at changing covert and overt behaviours related to pain. Relaxation techniques are usually an integral part of a comprehensive cognitive-behavioural treatment package. Behavioural and cognitive approaches are accepted as effective means for controlling pain. However, which of the major ingredients of each of the various approaches is most necessary for treatment success, is still not clear.

The paucity of well-designed and well-controlled studies prevent us from drawing any definite conclusion about the efficacy of specific cognitive-behavioural techniques in decreasing pain or pain-related processes or symptoms. A review of the effects of distraction techniques suggests that these procedures may be more helpful in alleviating mild pain than severe pain. This warrants additional research as does the question of which cognitive-behavioural treatments are indicated for particular pain problems and for particular patients.

According to Domar and colleagues (1993) the challenge confronting psychologists working in pain management, lies in devising appropriate experiments that will allow some rational distillation of the currently available

programmes, thereby permitting a more reasonable patient-intervention match.

Although the psychological therapies presented may seem varied and diverse, they share the basic assumption that reactions to pain can be modified to lessen the pain itself or tolerate the pain better (Sternbach, 1974). The basic tenet of all psychological approaches is to treat the psychophysiological activation at the psychological level, thereby initiating a downward spiral of less anxiety, less arousal, and less actual pain.

CHAPTER 5

ASSESSMENT OF PAIN: CONCEPTS, PROCEDURES AND MEASURES

One of the major concerns of the current study is to assess pain and to establish the reliability and validity of the Wisconsin Brief Pain Questionnaire (WB PQ) (Daut, et al., 1983). Therefore, a review of some of the major contemporary pain assessment methods is presented, including the dimensions of pain assessment based on the theoretical conceptualisations in chapter 3, any one of which may underly assessment. The intent is to present various ways of gathering information relevant to pain, as well as information on the reliability and validity of pain measures.

It is generally accepted that pain is multi-factorially determined, thus pain assessment should be comprehensive and our measurement should show the necessary breadth. Sweet, Rozensky and Tavian (1991, p.336) comment: *"in casting a broader net measurement techniques must account for the common patterns of causation and the unique patterns of response, such approaches must be sensitive to contributing factors"*. The components or broad parameters which form the cornerstone of pain assessment are discussed together with the most common pain measures and a critique of these measures.

1. The Principles Underlying Pain Assessment

Assessment refers to the collecting of objective and subjective data relevant to pain and the giving of meaning

to such data. According to Warfield (1993), assessment also involves studying the problem on a number of levels. First, we need to reveal the nature of the problem, defining what the patient does or thinks and describing how this affects his life and how he is affected in turn. Secondly, we need to ensure that we pick up the most important problems of the patient as the targets for treatment and change where possible. It is common knowledge that the patient rarely has one problem. Assessment therefore, involves putting these various problems into perspective. We try to ask why is this a problem for this person? If it is not a problem now, is it likely to become one in the future? In this sense assessment is concerned with potential problems as well as those in the here and now.

1.1 The Assessment Process

The psychologist's aims in assessment are to describe the patient's problem within the context of the whole person, to analyse the nature and function of the problem, and to produce a measure which will help in evaluating the problem and its change across time. /According to Barker (1992), the assessment process is a chain of stages which involves "taking pictures" of the patient and his problem. A different quality of picture is produced at each stage. At the first interview our image is crude and may be inaccurate in parts. By the time we reach the end of the baseline, our picture should be like a good "quality snapshot" (p.28).

Theorists and researchers on pain (Karlovy, 1985; Melzack, 1983; Turk et al., 1983) view the assessment

process as complex and often painstaking. Generally the assessment is made when the patient enters the health care system and involves a patient interview, interaction with the family, review of health care records, reports, and dialogues with other health care providers. There is agreement among investigators (Brena, Koch & Moss, 1976; Turk & Rudy, 1986; Waddell & Main, 1984) that adequate assessment of chronic pain requires the assessment of three important dimensions namely, *medical-physical (i.e., somatosensory, and neurophysiologic), psychosocial, and behavioural-functional*" (p.28). Karoly (1985) agrees with the foregoing views but advocates for a more comprehensive assessment which focuses on the broader context of pain incorporating the information processing dimension. In addition, he mentions that assessment should be guided by an appreciation of factors beyond the target response that determines how pain will be quantified and to what use the derived data will be put.

1.2 Multi-axial Dimensions of Pain Assessment

Karoly (1985) mentions six dimensions of pain assessment. These are:

- (a) somatosensory
- (b) neurophysiologic-autonomic-biochemical
- (c) motivational, affective/emotional, cognitive component
- (d) verbal motoric
- (e) interpersonal/life style impact
- (f) information processing

These dimensions serve as a framework for pain assessment.

1.3 Somatosensory-discriminative Dimension

This dimension serves as the organising framework for pain assessment by physicians and other allied health professionals working within the medical context. Knowledge of pathophysiology and its relation to the mechanisms of sensory transmission, physical examination of the patient, laboratory testing of blood specimens, and the use of a pain classification scheme, assist the physician in making sense of a patient's pain problem. An exhaustive list of the sensory-discriminative aspects associated with various pain states is difficult. However, at the head of any tabulation appears the *intensity* dimension which refers to how much pain hurts (Karoly, 1985; Warfield, 1993).

Warfield (1993) holds that the question "*how much does it hurt?*" (p.130) is still the most asked for in pain assessment work, despite the complex roles played by cultural conditioning and expectancies in determining a person's answer to this question. Both somatosensory and negative affective qualities are reflected in the person's report of how much it hurts.

In addition to intensity, other sensory aspects include the *location* or site of pain. In some instances the patient is required to point or trace the areas of pain on a silhouette of a human figure. *Quality* represents another facet of the assessment of pain and it is assessed by analysing the pain descriptors; descriptions provided or chosen by the patient to describe his or her pain. Descriptions of pain, according to Warfield (1993), allow the patient to share his unique perception of pain. According to Melzack and Torgerson (1971), these

descriptions could include the following: *thermal* properties of pain represented by any one of the following pain descriptors: burning, scalding and hot; the degree of pressure and type for example, dull throbbing and aching; and *temporal dimensions* characterised by phrases which indicate *chronology* of pain over time. Questions asked are: Is pain constant or intermittent, brief or steady? These descriptors and patterns of pain occurrence serve to assist in the planning of appropriate treatment.

In the biomedical context, pain assessment is also predicated on differentiating between *acute* and *chronic* pain. This is also based on temporal dimensions. Crue (1985), a physician and advocate of a time centred assessment model, notes:

Most of us have been taught that the only difference between acute and chronic pain is the length of time it has persisted. We have thus thought of chronic pain as the continuation of pain in the acute nociceptive input pain model. We have often unthinkingly confused etiology and mechanism . . . Physicians have been long aware that as the pain continues over time more and more central aspects historically referred to as functional overlay inevitably become operative (p. xviii).

Gildenberg and De Vaul (1985) criticise the acute-chronic differentiation model of pain. These authors assert that practical and clinical experience as well as consideration of the gate-control model previously discussed, calls into question any one-dimensional approach to the acute-chronic differentiation. Failure to separate initial precipitating factors from current maintaining factors may also have ethical implications when, for

example, physicians fail to discover a clear cut biophysical source for the continuing complaint of pain. They may blame their patients, discounting their somatic experiences as purely psychological in nature. However, recent years have seen new advances in the way clinical pain is conceptualised, with the result that it is now less fashionable for contemporary diagnosticians to view pain as a purely sensory event, or try to disentangle psychotic pain from organic pain. Therefore physicians who do not discover tangible signs of pathophysiology do not as readily dismiss pain patients as manipulators.

A four field classification of acute pain versus chronic pain based on the work of several investigators (Crue, 1979a, 1985; Keefe & Brown, 1982; Pinsky, 1978; Sternbach, 1974), is presented in Table 5.1. below.

Table 5.1: Pain classification based on duration of complaint, putative causal agent, patient coping style and significant others (family reaction patterns)

Classification of pain	Pain description, duration, and individual's coping style
Acute	Up to a few days duration Mild or severe Causes unknown or known Presumed nociceptive stimulus Sufferer expects relief based on medical interventions, extended coping efforts not seen as necessary Physician expects pain complaints to decrease with healing of affected tissues (e.g., toothache and post-surgical pain)

Table 5.1 continue

<p>Recurrent Acute (Intermittent)</p>	<p>Patient experiences variable pain-free intervals</p> <p>Presumed nociceptive (tissue derived) input from a pathological process (e.g., migraine, sickle cell crisis, arthritis, primary trigeminal neuralgia, and myofacial pain)</p> <p>Physician expects continued therapeutic efforts to pay off</p>
<p>Ongoing Acute (Progressive)</p>	<p>Continued nociceptive input (e.g., from cancer)</p> <p>Physicians willing to use potent narcotics</p> <p>Patients often concerned about the effects of analgesics or chemotherapy</p> <p>Treated like acute pain by patients and physicians</p>
<p>Pre-chronic</p>	<p>A few days to a few months duration</p> <p>Similar to acute, except not viewed as an emergency</p> <p>Known pathology</p> <p>Physician concerned with use of narcotic medication (e.g., addiction)</p> <p>Protracted healing process which is stressful (or at least autonomically arousing) to the sufferer</p> <p>Patterns of coping originally elicited by internal events are coming under the control of situational variables</p> <p>Some patients (with poor premorbid histories) are "at risk" to develop chronic intractable pain patterns</p>

Table 5.1 continue

Chronic Benign (Persistent)	Non-neoplastic (Non-cancerous) About 6 months in duration No known pathology or nociceptive input Patient is apparently coping adequately; has not made pain the centre of his/her life Physicians feel they can establish a working relationship with these patients
Chronic Intractable Benign Pain Syndrome (CIBPS)	Duration of 1 year and up Physicians view patients as difficult to treat. Psychiatric referrals are common Patients show physical decline (usually brought on by inactivity), psychological passivity (discouragement, depression), and excessive preoccupation with pain Familial reward for invalid status (secondary to pain)

Karoly (1990) is of the opinion that an initial classification based on pain duration, the presumed role of pathological bodily states, the manner in which the patient thinks about and reacts to the pain, and treatment style and expectations of others represents a reasonable reinterpretation of the acute-chronic distinction, one that avoids the oversimplification often evident in the clinical literature.

Thus Table 5.1, outlining four types of acute and two types of chronic pain, should clearly facilitate the process of treatment, referral to relevant professionals and post-treatment assessment.

1.4 The Neuro-physiological-autonomic and Biochemical Dimension

The major focus of pain assessment is on brain wave activity, heart rate and organs and systems innervated by the sympathetic nervous system which become active during the fight-flight response (Karoly, 1990). Medical scientists and other health professionals are concerned with this aspect of pain assessment. Researchers and clinicians usually assess one of the following: heart rate, blood pressure, skin temperature, skin resistance (believed to be associated with sweat gland activity), and pupil dilation. The primary purpose in examining autonomic factors is to discriminate pain patients from normal subjects or from each other (differential diagnosis) and as a means of identifying potential correlates of pain intensity. Sympathetic nervous activity is also sometimes assessed using two specific techniques, namely

- (a) the assessment of surface vasomotor response with thermography and
- (b) the measurement of vasomotor activity using thermistors.

Hendler, Uematesu and Long (1982) were able to use thermistors to identify organic disorders in 43 of 224 pain patients who were initially diagnosed as having psychogenic pain.

Biochemical assessment is done by measuring the activity of the endorphins. Thus an indirect assessment can be obtained of the degree of activity of the descending (centrifugal) pain suppression system. Two methods have

been used to measure endorphin activity. One involves the intravenous administration of the chemical naxolone which locks onto the neurotransmitter receptors such as those in the midbrain used by some endorphins. This effectively blocks the endorphins from using these receptors to inhibit pain. If a patient's report of pain increases more than would be expected, following the administration of naxolone, then the endorphin modulated pain suppression is likely to have been active.

Another method of assessing endorphin activity involves the collection of body fluids and the measurement through biochemical analyses of the amount of endorphins in the fluid. Measurement of endorphin levels are usually made in the cerebrospinal fluid (CSF), the blood plasma and urine.

Studies have shown endorphin levels to be associated with some chronic pain states. For example, chronic pain and chronic headache patients possess a lower endorphin level than do normal subjects (Akil, Richardson, Hughes & Barchas 1978; Sicuteri, Anselm, Curradi, Michelacci & Sussi, 1978; Terenius & Wahlstrom, 1975). In another study, patients diagnosed as having organic localised pain, had lower levels of cerebrospinal fluid beta-endorphins than patients diagnosed as having psychogenic pain, that is, vague and poorly localised pain (Almay, Johansson, Vonknorrig, Terenius & Wahlstrom, 1978). Cleeland, Shacham, Dahl and Orrison (1984) found cerebrospinal fluid beta-endorphins to be negatively correlated to self reports of pain intensity in patients having vertebral disc disease, whereas Genazzani et al. (1984), found CSF beta-endorphin levels to be negatively related to the severity of impairment in migraine sufferers. These studies suggest that some chronic pain states may be related to reduced

activity of the endorphin mediated endogenous pain suppression system.

The assessment of tense muscles involved in pain is also of importance especially with back pain (Károly, 1985; 1990). Electromyography has been used to measure the small amounts of electrical activity that are produced by the muscles when they are tense. Studies on back pain suggest that electromyographic scanning can help biofeedback clinicians to identify overly active muscles and thus pinpoint where treatment focus may be most beneficial (Cram & Steger, 1983; Hoyt et al., 1981; Wolff & Basmajian, 1978).

Unanswered questions include the importance of measuring more than one muscle group, the amount of time or number of assessment necessary to obtain reliable measures of muscle activity, and the number of positions, whether resting or moving, needed to enable one to obtain a clinically useful information.

Research findings using electromyographic measures for assessing headache pain are less encouraging than those for assessing back pain. Results in the use of electromyographic measures as a potential aid in diagnosis are also inconsistent. Some studies show higher electromyographic levels among tension and migraine headache patients as compared to non-headache patients (Andrasik & Holroyd, 1980b; Cohen, Williamson, Monguilot, Hutchinson, Gottlieb & Walters, 1993) whereas other studies do not (Gannon, Haynes, Safranek & Hamilton, 1986; Mathew, 1982; 1988).

In sum, the use of biofeedback as an assessment test in headache pain has yet to be strongly supported empirically. However, positive results have been reported with the measurements of electromyographic silent periods

in diagnosing myofacial pain dysfunction syndrome (Bailey, McCall & Ash, 1977; Bassette, Bishop & Mohl, 1977; McCall, Uthman & Mohl, 1978).

Studies on the assessment of myofacial pain utilising electromyographic recordings of the masseter muscles made just before and after delivery of a tap, have been encouraging. In all individuals the tap is associated with an immediate jaw reflex followed by an electromyographic silent period in which the muscles are inactive despite the attempt to clench. The afore-mentioned researchers were able to classify accurately each patient as either a myofacial pain dysfunction syndrome or a normal subject.

1.5 The Motivational-affective Dimension

A major advance in pain assessment is the view that emotions are elements of pain rather than a psychological overlay (Turk, Rudy & Salovey 1990). Flor and Turk (1984) proposed that repeated and sustained muscular hyperactivity may produce ischemia and oxygen depletion at the affected site and consequently the release of pain eliciting substances such as bradykinin. According to Chapman and Cox (1977), Craig and Neidemayer (1974), the pain then acts as an additional stressor, causing visceral and neurological dysfunctions that can further aggravate the experience of pain. Karoly (1990) agrees with Flor and Turk (1984), and notes that this pain is usually not associated with observable permanent structural change. It is often termed psychogenic pain, and Karoly (1985) mentions that it is still common for physicians to refer patients with such a pain to psychiatrists or speciality pain clinics, along with a bleak prognosis and an eagerness on the part of the patients to prove that: "*this pain*

isn't just in my head doctor" (p.473). He further criticises the medical profession and psychologists who collude with physicians by arguing that elevations on traditional psychological measures, like the Minnesota Multiphasic Personality Inventory (MMPI) and hysteria and hypochondriasis scales of chronic pain patients, help to confirm the psychopathologic rather than pathophysiologic nature of the presenting pain problems.

Anger, depression, anxiety and resentment are emotions frequently reported by patients with acute and chronic pain and these negative emotions in most instances affect their ability to function and cope with pain and the accompanying stress. Blumer and Heilbronn, (1982b) hypothesised that chronic pain is a variant of depressive disease with depressive symptomatology often masked as chronic pain.

However, other investigators (Dessonville, Reeves, Thompson & Gallagher, 1984) have questioned the conceptualisation of chronic pain as a depressive equivalent, citing a variety of conceptual and methodological weaknesses in the argument. Others (Getto, 1988; Magni, 1987; Turk, Flor, Rudy & Steig, 1987b) confirmed the views of Blumer and Heilbronn (1982b) but found that the depression manifested by chronic pain patients was qualitatively different from major depression in that pain patients tend to show fewer affective and cognitive symptoms.

Irrespective of the inconclusive evidence on the relation between pain and depression, sleep disorders and changes in affect are reported by pain patients. Failure to sleep at night can reflect an underlying anxiety or difficulty in distracting oneself from pain (Chaves & Barber, 1974; Davison & Valins, 1969; Turk, et al., 1983). Thus an investigation of past and present emotional dysfunctions and their temporal relationship with pain is

important. According to Turk, et al. (1983), disturbed emotional function can result in physical dysfunctions associated with the experience of pain.

1.6 Verbal-motoric Dimension

Verbal-motoric behaviour is another common pain element, as well as a target for what is commonly called behavioural pain assessment (Chapman, 1993, Karoly 1985). To some extent verbal expression is an essential ingredient of most pain. However, pain complaints, non-verbal posturing, impaired motor functioning, pain medication intake, psychomotor slowing, proportion of time sleeping, sitting, standing, walking, and exercising have all been used as practical and verifiable indices of pain (Fordyce, Brena, Lateur, Holcomb & Loeser 1978; Keefe & Block 1983).

In their first paper to report a quantifiable system to assess pain behaviours, Keefe et al. (1982), videotaped patients assuming static postures and performing a range of dynamic movements (sitting, standing, walking, and reclining, each for a period of two minutes). Keefe et al. (1982), then rated five categories of pain behaviours: guarding, bracing, rubbing, grimacing, and sighing. Variations on this approach, relying on the assessment of pain behaviour during interviews and other observational periods, have been reported (Cinciripini & Floreen, 1983; Fordyce, McMahon & Rainwater, 1981; Richards, Nepomuceno, Riles & Suer, 1982).

Turk, Wack and Kerns (1985) identified 63 prototypic behaviours gleaned from the literature. Eight pain therapists rated these behaviours according to how typical they were of pain patients. Twenty specific behaviours were rated as typical. For example, frequent shifting of

position and clenching of teeth are 2 of the 20 specific pain behaviours. Two primary dimensions characterised the 20 pain behaviours, audible-visible, and affective-behavioural. The pain behaviours also were classed within one of four clusters, labelled (a) distorted ambulation or posture, (b) negative affective, (c) facial/audible expression of distress, and (d) avoidance of activity. There were no differences between the physicians and psychologists in these ratings. The results of this study support the conceptualisation of pain behaviours originally outlined by Fordyce (1968) (refer to chapter 3).

These attempts by Turk et al. (1985), to operationalise pain are quite promising, though cumbersome. They require videotape equipment and sophisticated behavioural sampling and scoring. A number of investigators have cautioned, however, that exclusive reliance on the verbal-motor expression is unwarranted, because it is often difficult to distinguish pain behaviours from coping efforts (Turk et al., 1987b), and a single behavioural focus ignores the potential contribution of other pain components (Bradley, Prokop & Gentry 1981).

The word "potential" is critical in this argument, because there is no scientific reason to prefer two or three assessments to one. An assessor can employ converging measures only when there is a reasonable entity upon which to converge (Karloly, 1990). In some cases the verbal-motoric level may be the only one within which a clinician-assessor may wish to operate.

1.7 Lifestyle Impact/Quality of Life Dimension

The changes in physical functioning and comfort, psychological and social functioning, and a person's

dissatisfaction with herself or himself are multifactorial constructs that help to define quality of life (Mulhern et al., 1989) and refer to certain aspects of the individual's personality and his or her response to environmental demands. The interpersonal and lifestyle impacts of chronic pain disorder are perceived as consequences rather than as focal components in the literature. According to Karoly (1985) and Warfield (1993) pain can threaten the quality of life and disrupt normal activities during the course of diagnosis and treatment. Similarly, individual's long-term processing of pain (i.e., their understanding or implicit theory of pain, the way they integrate the facts of being chronically ill into their self schema, their ability to regulate actions, emotions and beliefs concerning pain) has a bearing on their social functioning.

A trend that has characterised assessment of the psychosocial dimension has been the reliance on instruments that were not specifically developed or normed on chronic pain patients, but were rather intended for use with psychiatric populations, for example, the Minnesota Multiphasic Personality Inventory (MMPI) and the Beck Depression Inventory. A detailed description and use of these instruments with chronic pain patients is beyond the scope of this review.

More recently comprehensive assessments to evaluate the psychosocial dimensions of chronic pain have focused on the following:

- (a) reports of pain severity and suffering;
- (b) perceptions of how pain interferes with patients lives, including interference with family and marital functioning, work, and social-recreational activities;

- (c) dissatisfaction with their present level of functioning in each of the areas listed in (b) above;
- (d) appraisal of the support provided by spouses, family, and significant others;
- (e) perceived life control; the perceived ability to solve problems and feelings of personal mastery and competence; and
- (f) affective distress, including ratings of depressed mood, irritability, and tension.

1.8 Information Processing

A final area of inquiry involves the assessment of cognitive-attitudinal factors. These include beliefs regarding the nature of the pain problem, expectancies of outcome, attention to pain, openness towards rehabilitation, and the perceived meaning of pain and perceived control over it.

The importance of cognitive factors in acute pain is suggested by studies of volunteers exposed to an acutely painful stimulus (Bobey & Davidson, 1970; Chaves & Barber, 1974; Davidson & Valins 1969; Geer, Davidson & Gatchel, 1970; Kanfer & Goldfoot, 1966; Staub, Tursky & Schwartz, 1971). These studies led the above investigators to conclude that subjects report increased pain and have a lower ability to tolerate pain when they expect that a given stimulus will be painful, perceive themselves as having little or no control over the stimulus, focus attention on the pain stimulus, or feel anxious.

Karoly (1985) is concerned that many clinicians lose sight of the fact that pain can overwhelm information processing and problem-solving activities. Thus patients'

thoughts and appraisals may affect many aspects of their lives and the understanding of their condition.

Some patients try to protect themselves from the full impact of pain by denial, playing down or emotionally detaching themselves from the situation. Others may become excessively critical in their attempts to cope with pain. These specific reactions may be partly determined by the context of the pain but are more likely to arise from individual differences and personality.

Perceived control is another important area of assessment. Weiss (1989) showed this in his studies of stress in which two rats were given electric shocks, of which one was merely a passive recipient. The rat which had control over the shocks was found to develop significantly fewer ulcers than the passive rat.

Corresponding studies on helplessness indicate that harmful and distressing situations over which people have little control make them helpless, believing that nothing they do will significantly alter the outcome.

Turk, et al. (1983), cited studies that they performed suggesting that *catastrophisation*, that is, thinking the worst about future pain, is a major factor in increasing the experience of pain and in decreasing one's ability to cope with it.

With chronic pain, these cognitive factors are likely to gain more and more predominance as time passes. Patients often learn to expect and fear pain, to see themselves as having no control over it, to see it as robbing their lives of any positive meaning, and to catastrophise about the future effects of pain. Lefebvre (1981) found that cognitive distortions about the nature of pain are common in chronic pain patients. Smith, Follick, Ahern and Adams (1986) found that patients who misconstrue

the meaning of pain sensation, particularly those who predict future disability, tend to be more disabled than patients who do not. These studies lead one to conclude that cognitive factors are an important area of pain assessment and the altering of patient's appraisals of themselves as an intervention is indicated. We therefore conclude that the goals of pain assessment are to provide the psychologist and other professional assessors with an understanding of the patient in his or her physical and social environment, his or her psychological strengths and weaknesses, the evidence of pain, the response to pain, the identification of coping skills, and the parameters for possible intervention.

2. Specific Methods of Assessment

Clinicians should not be wedded to one method or process of assessment, although a good clinical interview is the core method. Multi-measure methods including questionnaires, formal observations, and patient diaries, with convergent hypothesis testing, are often most appropriate (Belar, Deardoff & Kelly, 1987).

2.1 Self-reported Information

The personal nature of pain means that a physician or a pain therapist can only confirm the patient's pain report by observing the patient's behaviour and making an interpretation based on its consistency with known pain behaviour. Self-report tests, such as the Visual Analogue Scale to be described later or simple descriptive scales,

continue to be used because of their ease of application and simplicity of understanding by both patient and clinician. According to White (1993) self reports are limited because they test one dimension of pain at a time, while more complex methods such as the McGill Pain Questionnaire and the Wisconsin Brief Pain Inventory, can assess pain on several levels. Some of the more important and common standardised pain measures are reviewed below.

The interview is regarded by Chapman (1991) as the best source of information. It permits the direct observation of the affect, physical state, and cognitive state of the patient, and allows an in-depth exploration of the identified problem areas. The interview should cover pain complaints, history of pain and treatments, work history, sleep disturbances, social relationships, emotional status, mental status, cognitive attitudinal factors, and pain interference with physical, social and recreational activities.

According to Sweet, et al. (1991), the interview provides a sampling of behaviour in an inter-personal situation. Due to the subjectivity of interview data, it is important to compare such data with objective measures of behaviour and also to gather information from multiple sources, which may include previous physicians, employers, and other significant persons. Karoly (1990) also recommends the assignment of in vivo assessment tasks to record daily pain experiences, medication use, and other activities using a pain diary.

2.2 Standardised Questionnaires

The use of standardised questionnaires allows a more objective comparison of important aspects of the patient's

behaviour with that of other patients studied and treated (Chapman, 1991). To assess the experiential dimension of pain, several questionnaires and self-rating scales have been developed. The pain experiences tapped by these self-rating scales and questionnaires can roughly be divided into four categories: how much it hurts (magnitude and intensity); how the individual responds emotionally to the pain experience (affective quality); what the pain feels like somatically (sensory quality); and where it hurts (location and spatial distribution).

2.3 Measures of Pain Intensity

The Visual Analogue Scale (VAS) developed by Huskisson (1974), represents a simple method of quantifying self-rated pain intensity. Currently there are various Visual Analogue Scales and the most commonly used consists of a horizontal line, usually 10cm in length with or without marks at each centimetre and with end points labeled "no pain" and "*pain as bad as it could be*" (Appendix E). This linear scale is the visual representation of a range of pain that the patients believe they might experience. It takes several forms, either as a pain scale or pain-relief scale (Seymour, Simpson, Charlton & Phillips, 1985). In some versions the letters of the words "*light*", "*moderate*" and "*severe*" are evenly spaced below the line (Huskisson, 1974; Scott & Huskisson, 1976b).

The scale is completed by the patient, who is asked to draw a mark on the line that represents the level of pain being experienced. The distance measured in millimetres from the lower anchor represents a measure of the particular pain intensity which is being quantified.

A strength of the VAS is its demonstrated validity as a measure of pain intensity:

- (a) It correlates with other measures of the pain intensity (Downie, et al., 1978; Elton et al., 1980; Jensen, Karoly & Braver, 1986; Kremer, Atkinson & Ignelzi, 1981; Ohnhaus & Adler, 1975; Seymour, et al., 1985; Woodforde & Merskey, 1972)
- (b) It is sensitive to treatment effects (Joyce Zutish, Hrubes & Mason, 1975; Seymour, et al., 1982; Turner & Romana 1982a).
- (c) Visual-motor errors, which are a measure of the patient's ability to accurately and reliably place the mark on the line, are minimal in young healthy subjects (Huskisson, 1983).
- (d) There appears to be no difference between scores whether the scale is presented vertically or horizontally (Dixon, 1986; Scott & Huskisson, 1979).
- (e) It is easily understood by most patients and can be readily reproduced for successive presentations (Revill, Robinson, Rosen & Hogg, 1976).
- (f) Children from age 7 can understand it (Abu-Saad, 1984).
- (g) It is more accurate than a verbal category scale of pain relief, which has insufficient words of ascending severity to critically grade pain relief (Ohnhaus & Adler, 1975).
- (h) Test-retest reliability is high (Scott & Huskisson, 1976a).

- (i) Chronic pain patients have been found to be consistent in recording their ratings of different levels of experimental thermal pain and in comparing such levels with their clinical pain (Price, McGrath, Raffi & Buckingham, 1983).

However, there are some problems with the VAS as a measure of pain intensity (Huskisson, 1983):

- (a) It treats pain as if it were unidimensional.
- (b) It emphasises intensity without due regard to other dimensions.
- (c) The scale imposes limits by making the extremes absolute. Although "no pain" or "complete relief" is undisputably an absolute measure, the other anchor is not. The "worst pain one can imagine" leaves no room for even worse pain at a later time.
- (d) Not all patients can complete the VAS. A failure rate of 7% was reported by Scott and Huskisson (1976b).
- (e) According to Bhachu, Kay, Healy and Beatty (1985) and Gracely (1979), responses to the VAS are influenced by various biases affecting psychophysical measures. The VAS requires a certain amount of coordination, which may be lacking in the post-operative period, and measurements may be difficult to perform after anaesthesia, when the patient may experience concentration problems.

A variant of the VAS is the *pain-relief scale* with the anchors defining the degree of pain relief. The patient is

asked to mark on the line between the anchors the amount of pain relief when compared to an earlier time. The same advantages and disadvantages as for the VAS as a measure of pain apply.

The Verbal Numerical Scale (VNS) is a second common method of pain intensity assessment. It is not clear who developed it. The verbal numerical scale is a simple verbal pain-rating scale with similarities to the VAS, and involves asking patients to rate their pain from 0 to 10 or 0 to 100 with zero representing no pain and the 10 or 100 representing pain as bad as it could be. Whatever number the patient states, represents the pain intensity measure for that patient.

Numerical rating scales have consistently demonstrated their validity as pain intensity measures by their positive and significant correlation with other measures of pain intensity (Jensen et al., 1986; Kremer et al., 1981; Seymour 1982; Seymour et al., 1985; Wallenstein, Heidrich, Kaiko & Houde, 1980), and their sensitivity to treatment effects (Chesney & Shelton, 1976; Kaplan, Metzger & Jablecki, 1983).

Advantages of the verbal numerical rating scales are:

- (a) They eliminate the need for visual and motor coordination required to complete the VAS and they are more likely to be completed (Murphy, McDonald, Power, Unwin & MacSullivan 1988).
- (b) They appear to be more useful than the VAS for pain measurement in the early phases of the post-operative period (Nayman, 1979).
- (c) They are extremely easy to administer and score (Carlsson, 1983).

- (d) They can be used with a great variety of patients (Kremer et al., (1981).

A pain relief scale is a variant of the Visual Numerical Scale (VNS). The anchors define the degree of pain relief, zero indicating "no relief" and ten indicating "complete relief" (Huskisson, 1974).

The Picture Scale (PS) offers a series of facial expressions ranging from smiling through crying, and is often a helpful pain intensity and pain relief measure for children. This scale was developed by Frank, Moll and Hort (1982). It consists of eight pictures presented to the patient in a random order, and the patient is asked to choose the picture that best illustrates his or her pain experience. Each picture is associated with a number from 0 to 7, depending on the pain intensity illustrated. The number associated with the picture chosen by the patient represents his or her pain intensity score.

One strength of the PS is that it does not require the patient to be verbally fluent. Therefore, it has the potential to be useful as a measure of paediatric pain.

Although the PS has demonstrated some degree of validity, both through its significant relationship to a VAS (Frank et al., 1982), and its sensitivity to treatment effects (Mann et al., 1984), the scale has yet to gain wide acceptability by clinicians, and it is not yet clear how it relates to other measures of pain. The expressions illustrated on the PS appear to be very affect-laden, so the scale may be closely associated with the affective component of pain (Warfield, 1993). Additional research with the PS is therefore indicated before it can be recommended as a measure of pain intensity.

The Verbal Rating Scale (VRS) was developed by Keele (1948) and consists of a list of adjectives that describe different levels of pain intensity, such as *mild, moderate, severe, absent* or *discomforting*. The pain patient is asked to consider the list and choose the adjective that best describes his or her pain. Similarly, pain relief can be defined as *none, slight, moderate* or *severe*. Distances between word descriptors on this scale are assumed to be equal (Lodge & Tursky, 1979).

The usual method of scoring the VRS is to rank the words in order of intensity level, and then give the lowest-intensity adjective a score of 1, the next a score of 2 and so on until each word has a number associated with it. The number that corresponds to the adjective chosen by the patient, represents his or her pain score or pain relief score.

This scale has been shown to be sensitive to treatment effects, gender, and ethnic differences (Ohnhaus, et al., 1975). The verbal scale is limited because it offers a restricted choice of words that represent pain and pain relief (Descamps, Band & Coldman, 1988) and therefore does not allow for finer pain assessment.

The Behaviour Rating Scale (BRS) was first developed by Budzynski, Stoyva, Adler and Mullaney (1973) as a measure of head pain. This scale asks patients to rate the intensity of their pain in terms of its effects on their behaviour.

The BRS has demonstrated its validity as a measure of pain intensity through its significant correlations with other measures of pain intensity, its lesser correlations with measures of other subjective components of pain (Andrasik, Blanchard, Ahles, Pallmeyer & Barron, 1981;

Jensen et al., 1986), and by its demonstrated sensitivity to treatment effects (Budzynski et al., 1973).

The BRS may be more meaningful to some patients because it provides behavioural markers with which to judge pain (Collins & Thompson, 1979). However, because the BRS assesses pain intensity in terms of its effects and not how it feels, it is best to consider it as an indirect measure of pain intensity. This conclusion is consistent with the finding that the BRS shows the weakest relation to a composite measure of pain, when compared with other intensity measures (Jensen et al., 1986). In addition, the BRS provides relatively few response categories.

2.4 Measures of the Affective Component of Pain

Two of the most common methods for measuring the suffering caused by pain are Verbal Rating Scales, and the affective subscale of the McGill Pain Questionnaire to be discussed in the next section.

Verbal Rating Scales (VRS) have been developed for measuring the suffering caused by pain by Gracely, McGrath and Dubner (1978b) and by Tursky, Jamner and Friedman (1982). They both consist of adjectives describing increasing amounts of discomfort and suffering. Tursky and colleagues (1982) used a 12 point scale consisting of the following words: "not pleasant, bearable, tolerable, uncomfortable, distracting, unpleasant, distressing, miserable, awful, unbearable, intolerable and agonising" (p.14). Gracely et al., (1978a) used a 15 point scale consisting of the following descriptors: "bearable, distracting, unpleasant, uncomfortable, distressing, miserable, oppressive, awful, frightful, dreadful, horrible, agonising, unbearable, intolerable and

excruciating" (p.8). Like those of pain intensity, these verbal scales may be scored in three ways:

- (a) the ranking method, which involves giving each word a score associated with its position in the list;
- (b) the Cross-Modality Matching (CMM) method, which requires the patient to indicate the degree of unpleasantness on a numerical or linear scale, using the number stated, the length of the line drawn or an average of the two as the score associated with each word (Tursky et al., 1982); and
- (c) the standardised score method, which incorporates the average ratings of the words on the VRS's by the individuals experiencing laboratory pain.

No study has directly examined the relative merits of scoring affective VRS's using the three scoring methods outlined. Some preliminary evidence exists for the validity of verbal rating scales as measures of the affective component of pain. Research generally indicates the following: (a) a greater correlation with measures of other affect-laden constructs than with measures of pain intensity and (b) responsiveness to treatments of pain intensity designed to reduce the affective response to pain (Ahles, Ruckdeschel & Blanchard, 1984; Andrasik, Blanchard, Ahles, Pallmeyer & Barron, 1981; Gracely et al., 1978a).

2.5 Multidimensional Measures

These are measures of various dimensions of the pain experience, such as its location (the area or site where the patient experiences pain, whether on the surface or internal), the daily activities affected by pain (such as walking, socialising, working and recreation), the number of health care professionals consulted, the quality of pain, intensity, time course, and emotional associations.

Self Report: Use of Word Descriptors. The belief that language can provide the means of describing the pain experience was introduced by Dallenbach (1939). He created five groups of word descriptors which represented characteristics of pain such as quality, time course, and emotional association.

Melzack and Torgerson (1971) continued this work on the use of adjectives to describe pain. In their original presentation, they included 102 words derived from the literature on clinical pain and grouped these words into classes and subclasses according to the similarity of their meaning. An independent panel further pruned the set of words. The final descriptors were said to represent three interrelated but distinct components of the pain experience: *affective, sensory, and evaluative* dimensions.

This three-dimensional experience of pain has been supported by factor analytic studies (Prieto, Hopson & Bradley, 1980). The pain words were incorporated into a pain measurement instrument known as the Pain Rating Index, which was incorporated into the McGill Pain Questionnaire (Melzack, 1975).

Using experimental psychophysical methods to substitute words that describe the sensory and unpleasant qualities of pain, it is possible to validate the use of

word descriptors as representative of the pain experience (Gracely et al., 1978a). To confirm the discriminatory ability of words, Gracely et al., (1978c), demonstrated that the use of diazepam resulted in changes of affective but not sensory word choices. The same authors using the narcotic agent fentanyl, applied the same method of Cross-Modality Matching to induced dental pain and demonstrated a change in the choice of intensity but not sensory descriptors (Gracely, McGrath & Dubner, 1979).

Physicians agree on the use of word descriptors to discriminate between pain syndromes. Primary neuralgias frequently are described as sharp and lancinating, vascular headaches as throbbing, and muscle pain as a continuous and dull ache (Keith, 1993). However, for reasons unclear, they rate word descriptors as being more useful for acute than chronic pain patients (Tearnan & Dar, 1986). Chronic pain patients often have interrelated problems that are too complex to be reliably discriminated by simple word sets (Fordyce, et al., 1978).

There have been concerted efforts to find appropriate word descriptors for a pain questionnaire for children (Abu-Saad, 1984; Gaffney, 1989; Jerrett & Evans, 1986). A number of investigators (Wilkie, et al., 1990) published a list of 56 word descriptors that appear relatively free of gender, ethnic, and developmental bias for use with children. This list appears to have test-retest reliability, and has an acceptable content and construct validity for use in a clinical situation.

The McGill Pain Questionnaire (MPQ). The McGill questionnaire developed by Melzack (1975) is designed to provide information on three hypothesised dimensions of pain:

- (a) the sensory, for example, temporal spatial, pressure, and thermal aspects;
- (b) the affective, for example, tension and fear aspects, and
- (c) the evaluative, for example, the overall severity of the pain experienced.

The MPQ consists of a list of 78 adjectives, divided into 20 subclasses. Each subclass contains two to six words and is intended to reflect a specific quality of the pain experience. Sixteen of the subclasses comprise the items for the three dimensions of pain, with the sensory dimension represented by 10 subclasses, the affective dimension represented by 5 subclasses and the evaluative dimension represented by 1 subclass. The remaining 4 subclasses consist of unclassified words, thus creating a "miscellaneous" subsale of pain. Patients are asked to choose one word from each subclass that best describes their pain. If no word in a particular subclass describes the pain, the patient may omit the response. Each word in the 20 subclasses is associated with a specific score, ranging from 0 to 5, based on the average degree of pain intensity assigned by groups of physicians, patients and students (Melzack & Torgerson, 1971). Thus this scale is essentially a VRS scored according to predetermined rank, such that the word in each group implying the least severity is assigned a value of 1.

According to Melzack (1975), the MPQ must be carefully administered to be reliable. Some of the words in the MPQ may be difficult for some patients to understand; someone needs to be present to define words when necessary.

The rank values are then added to obtain a score for each subclass of sensory, affective evaluative and

miscellaneous, and these values are added to produce the Pain Rating Index Total (PRI-T). A second major scoring index is the number of words chosen (NWC). The third scoring index consists of the Present Pain Intensity Index (PPI). This is essentially a VRS of 0 to 5 with particular word descriptors such as *no pain, mild pain, discomforting, distressing, horrible and excruciating*. Combined with the PPI, the PRI-T, and the NWC it provides a quantitative assessment of the total pain experience.

Additional questions deal with prior pain experience, its location, and information on current usage of medication. A human figure drawing, in which the patients indicate their pain location, is also included.

There has been an enormous amount of critical examination of the way in which this test has been constructed to assess its reliability, validity, and ability to discriminate between diagnostic groups (Kremer & Atkinson, 1981; Kremer et al., 1981, 1983; Melzack 1975, 1983; Prieto et al., 1980; Reading, 1979). The greatest value of the MPQ is that, for the first time, it allowed the quantification of many separate components of the subjective pain experience. The value of measuring the multiple components has been demonstrated in a number of experiments. First, the MPQ was shown to reflect organic aspects of pain (Agnew & Merskey, 1976; Leavitt & Garron, 1979a).

Second, the PRI-T scale has been shown to be useful in differentiating patients who demonstrate psychiatric disturbance from those who do not (Kremer & Atkinson, 1981; Kremer, Atkinson & Kremer, 1983). The MPQ has also been successful in discriminating among patients who have different kinds of pain (Dubuisson & Melzack, 1976; Gracely, et al., 1978a). The latter researchers were able to correctly classify 77% of patients suffering from

cancer, degenerative joint disease, and arthritis. Reading (1979) was able to distinguish patients with dysmenorrhoea from cancer patients.

Finally, the MPQ has demonstrated validity as a measure of pain through the sensitivity of its subscales to treatment effects (Melzack & Perry, 1975; Rybstein-Blinchik, 1979). All of the above studies found that the words of the Pain Rating Index (PRI) are appropriately grouped. Current evidence indicates less consensus upon the scaling of the words within each group and suggests that the words within subscales are not equidistant (Reading & Everitt & Sledmere, 1982). Also patients tend to choose similar words to describe their pain over time (Graham, Bond, Geekovich & Cook, 1980; Melzack, 1975). There is also an imbalance between the number of sensory, affective, and evaluative components of the PRI-T. The sensory dimension predominates over affective and evaluative dimensions in the number of subsets devoted to it (Charter & Nehemkis, 1983).

Whatever the validity of these criticisms, there is consensus among researchers who reviewed this test that it provides information on the quantitative and qualitative aspects of pain. It also treats pain as a multi-dimensional experience.

Its other limitation is that it requires the patient to possess an understanding of words used in the test. If the patient does not have the intellectual capacity or does not possess sufficient vocabulary, the value of the test is diminished. Similarly, particular word usage may not be understood by patients of differing culture and language. Consequently, the MPQ now forms the basis for similar pain questionnaires in other languages, such as Finnish (Ketovuori & Pontinen, 1981), Dutch (Vaderiet, Andriaensen, Carton & Vertommen, 1987), and Norwegian (Strand & Wines,

1990). To alleviate some problems associated with the MPQ several pain scales, including the Wisconsin Brief Pain Inventory, were developed.

The Wisconsin Brief Pain Questionnaire (WB PQ) was developed by Daut et al. (1983) specifically to assess pain in cancer patients and to remove some of the deficiencies of the MPQ, namely its failure to assess the history of the pain and its interference with the patient's daily activities. Daut et al. (1983) supported by Descamps, Band, & Coldman, (1988), also note that cancer pain often has an insidious onset, may involve many sites, and is sometimes multicausal. Consequently, it is more often difficult to assess.

The WB PQ contains 17 questions (Appendix D). It is self administered, easily understood, and can be easily completed unless the patient is most unwell. It uses simple techniques, such as a pain drawing and verbal numerical scales, to simplify the task. It assesses relevant pain data, such as the current manifestation of pain, its history, intensity, location, quality, pain relief, and pain interference with mood, enjoyment of life and everyday activities. Patients are requested to rate their pain "now" and at its "average" and "worst".

The pain intensity scale ranges from 0 to 10 and it employs a verbal numerical scale which is linear. The patient chooses a number between zero and ten to represent the level of pain intensity, and the anchors are *no pain* and *pain as bad as one can imagine*. The pain relief scale has anchors defining the percentage of pain relief with 0% representing *no relief* and 100% *complete relief*. The patient is asked to indicate the amount of pain relief obtained from previous and current medication.

The *location and spatial aspects* of pain, that is, the distribution of pain, are assessed using the pain drawing with a human figure outline. The patients have to shade in areas within the human figure outline corresponding to their area of pain sensation. The quality of pain is assessed by asking patients to describe their pain using their own words. A verbal rating scale is used to categorise pain interference with mood, daily activities, and sleep as *not at all, mild, moderate, and severe*.

The test appears to have adequate reliability when assessing chronic cancer pain and arthritis (Daut et al., 1983). It is easy to administer either by an interviewer or by the patient, and can be used also for noncancer pain. The objectivity and reliability of this test permits clinicians to chart the course of an illness and also evaluate the success of treatment.

The major shortcoming of the WBPI is that it does not address issues such as the emotional significance of pain or its influences on the patient's life. Compared to the McGill Pain Questionnaire, the WBPI has not been reviewed extensively by researchers working with pain patients. Hence the importance of using this pain measure in the current investigation to assess its utility.

The researcher decided to adapt it to suite the local population and use it to assess both acute and chronic pain. No studies to date have applied it to acute pain.

The Pain Diary (PD). The Pain Diary was developed by Keele (1948) and refined by Cohen and McArthur (1981). It is a personal, oral or written self report of day to day experience and behaviour related to pain. It is frequently used in pain clinics and has been used as an aid in diagnosis. The patients are asked to make notes of pain intensity, particularly in relation to the following:

- (a) daily activities such as sitting, standing, and lying down;
- (b) sleep patterns;
- (c) sexual activity;
- (d) specific tasks;
- (e) pain medication taken;
- (f) meals taken; and
- (g) recreational activities pursued.

The information elicited from a pain diary is useful in clinical research. The reports are usually reliable, and can be used to monitor day to day variations in the disease (Jamison & Brown, 1991; Keele, 1948). The diary is furthermore a more accurate record of actual drug ingestion than memory recall (Ready, Sarkis & Turner, 1982).

The pain diary has sometimes been included in a larger instrument, such as the Pain Perception Profile (Tursky, Jamner, & Friedman, 1982), and the Dartmouth Pain Questionnaire (Corson & Schneider, 1984).

The Pain Apperception Test (PAT) was developed by Petrovich (1958). It consists of a series of cards, similar to those used in the Thematic Apperception Test (TAT), that depict painful situations. A study by Haase, Banks and Lee (1975) on the PAT points out that the PAT is a "semi projective test" in which the individual projects his feelings about pain and his prior experiences with pain onto the depicted situations.

There is conflicting evidence on the concurrent validity of the PAT. Petrovich (1975) studied the validity

of the PAT on 100 patients in terms of two other measures, the Taylor Manifest Anxiety Scale (Taylor, 1953) and the Eysenck Medical Questionnaire. There were significant positive correlations of 0,39 between the PAT and the Taylor Manifest Anxiety Scale and 0,43 between the PAT and the Eysenck Medical Questionnaire. However, studies by Haase et al. (1975) on 36 patients indicated little relationship between the PAT scores and the Kinaesthetic After Effects Task (a measure related to pain tolerance) and the Eysenck Personality Inventory. Ziesat and Gentry (1978) conducted a concurrent validity study of the PAT on 55 chronic patients. Five other measures, namely the MMPI, the Health Index, the Whitely Index, the Pain Estimate, and the Tourniquet Test were used. The results did not strongly support the concurrent validity of the PAT, given the small number of significant correlations obtained. However, several patterns did emerge. The PAT correlated positively with the Alcoholism and Social Introversion scales of the MMPI, and the Invalidism scale of the Health Index. The PAT correlated negatively with the Psychopathic Deviate Scale of the MMPI. It would appear that further research is needed to gauge the value of the Pain Apperception Test.

A Pain Apperception Test (PAT) was devised for the current research to assess various qualitative aspects of the pain experience (Appendix A). The test consists of three stimulus cards, each with a picture of an adult male, adult female and a young child run over by a motor vehicle. To elicit responses on perceived pain, the subject has to describe:

- (a) what he or she sees,
- (b) what is happening,

- (c) what the outcome will be, and
- (d) who is in more pain and why.

The responses of the subjects are analysed qualitatively. According to Karoly (1985), instruments designed to tap psychologically and ecologically meaningful reactions to pain, can assist the clinician to understand pain from the patient's social context, thus giving a broader picture of how pain interferes with day to day functioning, how the patient copes with pain, how family members deal with the patient's pain problems, and the effect of gender and age on pain perception. As this is a new instrument its ability to tap pain-related variables is still to be established.

Measurement of overt pain behaviour. The measurement of pain behaviour generally focuses on modifying patients' activity levels while decreasing their reliance on medication. Keefe and Block's (1982) measurement system, which rates five motor behaviours in low back pain patients (bracing, guarded movement, rubbing painful area, grimacing, and sighing), represents a major advance in the objective measurement of pain behaviours. Observers can be trained to quantify these behaviours with 93% to 99% accuracy either during a standard medical examination or through time sampling methods. The validity of this methodology has been demonstrated in studies with back pain patients and revealed positive correlations of certain of these motor behaviours with subjective pain intensity (Keefe & Crisson, 1988; Keefe, Wilkins & Cook, 1984) and with measures of medical status, such as surgical history and positive medical test findings (Keefe et al., 1984). This measure is also sensitive to a change of pain relieving modalities, for example, from medication to nerve blocks (Connally & Sanders, 1991), and may represent a method of evaluating treatment outcome.

2.6 Mood Assessment

As indicated earlier, depression, anxiety, and anger are some of the emotional factors which are associated with the pain experience. Melzack and his colleagues (Melzack & Casey, 1968; Melzack & Wall, 1965) suggested that cognitive-evaluative and motivational-affective factors interacted with sensory phenomena to create the perception of pain. From this perspective, it is essential that mood or affect be assessed as it is believed to be related to an individual's perception of pain. The following mood measures can be used to tap the psychological distress of pain patients.

The Profile of Mood States (POMS) is a standardised checklist consisting of 65 adjectives (Appendix F), developed by McNair, Lorr and Droppelman (1971) to measure the following transient mood states: *tension, fatigue, depression, confusion, anger, and vigor*. A five-point verbal-numerical rating scale is employed to measure mood intensity. The patient merely chooses a verbal descriptor, which is then scored as follows:

- 0 = not at all
- 1 = a little
- 2 = moderately
- 3 = quite a bit
- 4 = extremely

Factor analytic studies of the POMS (McNair et al., 1971), have found six interrelated factors, namely *tension-anxiety, fatigue-inertia, vigor-activity, confusion-bewilderment, depression-dejection, and anger-hostility*. A score is obtained for each factor by summing the values

given to the relevant adjectives within the factor. Since the items are randomly positioned, overlays are used to determine the six subscale scores. A Total Mood Disturbance (TMD) score may be calculated by summing the scores across the six factors with "vigor-activity" weighted negatively.

The reliability and validity of the POMS have been established by McNair et al. (1971); norms for cancer patients have also been established (McCorkle & Quint-Bencliel, 1983; Norcross, Guadanoglin & Prochaska, 1984). Research by Schacham, Reinhardt, Raubertas & Cleeland (1983) has shown that pain intensity correlates weakly but positively with negative mood. However, research that examines the relationship between mood and other important components of pain has yet to be performed.

The current study uses the Profile of Mood States to assess the psychological attributes (mood) of pain patients. The use of this measure follows from the assumption borne out repeatedly in the clinical and empirical literature that pain is a somatopsychic phenomenon and the patient's psychological status has important implications for the planning, implementation, and outcome of treatment.

2.7 The Pain Eliciting Incidents Questionnaire (PEIQ).

This questionnaire was developed by the current researcher and consists of 11 semi-structured open-ended questions describing pain eliciting incidents (Appendix B). The subject is requested to provide a descriptor or adjective for each of the 11 questions presented describing the resultant pain.

The theoretical framework comes from the gate-control theory (Melzack, 1975, Melzack & Wall 1965) and from Dallenbach (1939), who created adjectival descriptors representing the various characteristics of pain such as quality, intensity, and affective connotation. This work was then furthered by Melzack and Torgerson (1971) and Agnew and Merskey (1976). These were amongst the first researchers to offer a scientific pain terminology. Melzack (1975) considered pain as a multifaceted personal experience which is communicated through language, and is a result of the processing that has gone on at a higher level.

The development of the Pain Eliciting Incidents Questionnaire for Setswana-speaking subjects is discussed in the next chapter.

Other multimeasure tests designed for chronic patients. Several tests have been developed for use with chronic pain patients, including the Psychosocial Pain Inventory (Heaton et al., (1982), the Pain Disability Index (Tait, Pellard, Margolis, Duckro & Krause, 1987), the chronic Pain Battery (Levitt, 1983), the Vanderbilt Pain Inventory (Brown & Nicassio, 1987), and the Darmouth Pain Questionnaire (Corson & Schneider, 1984). The research is still too cursory to provide a clear assessment of their utility. One test that appears particularly promising is the West Haven Yale Multidimensional Personality Inventory, devised by Kerns, Turk and Rudy (1985). It is a 52-item questionnaire divided into three sections. One section measures five important dimensions of the pain experience: pain severity and suffering, interference with function, support from others, perceived life control, and affective distress. Two other sections relate to specific responses to pain by significant others (such as soliciting, punishing, and distracting), and to the nature of the

respondents' social, recreational, and physical activities. Its strengths lie in its ease of administration and scoring and its sensitivity to treatment effects (Barrios, Niehaus & Henke, 1986; Kerns et al., 1985).

3. Conclusion.

A comprehensive approach to pain assessment has been presented in an effort to understand the individual with pain within the broad context of his or her biopsychosocial functioning. Several pain measures are described for sampling the experiences of the pain patient. These include physiological measures, verbal numerical scales, verbal reports, as well as observations of the patient. The intent is to measure pain reliably.

In this respect, pain measurement follows the assumptions and goals of measurement in the biomedical and physical sciences regarding reliability and validity. Because questionnaires depend on self report, they may be subject to intentional and unintentional bias and distortion, thus it is important to give repeated measures and to corroborate questionnaire-based conclusions with information drawn from other sources. However, it is not known if some of the questionnaires reviewed may be used reliably with Black South African pain patients.

Assessment across cultures. The purpose of the review is to sensitise the reader and researcher to some of the pitfalls inherent in using tests from overseas countries.

The indiscriminate use of psychological tests standardised on a different cultural group, is always fraught with difficulties as norms are not easily transportable to another culture and also the tests we use

are never culture fair. Therefore, extreme caution should be taken when interpreting test scores from a different cultural group unless there is compelling evidence from varied sources suggesting that the test scores are valid (Lonner, 1983). Frijda and Jahoda (1966) argued that "for a test to be truly fair it has to be equally familiar or equally unfamiliar to all" (p 146). As either option is impossible, bias is inherent in all tests.

The current research utilises a projective technique, the Pain Apperception Test, for assessing previous learning patterns related to pain. Numerous researchers (Lindzey, 1961; Molish, 1972; Rabin, 1968; Reynolds & Sunderberg, 1976; Spain, 1972;) are critical of the methodology used to gather information from subjects using projective tests across cultures. They indicate that factors such as age, sex, and education as well as alternative hypotheses concerning the results, are seldom mentioned in published reports; the examiner's influence on test performance is usually left unaccounted for; problems of sample comparability across cultures have been largely ignored; methods of scoring and interpretation have depended heavily upon procedures developed in the United States and Europe and extended uncritically to cross-cultural studies; inferences drawn from projective data have often been contaminated by knowledge of other data outside the testing situation; and there have been tendencies to treat group averages as descriptive of the entire group which ignores widespread individual variation.

De Vos (1976), an adherent of projective techniques, believes that projective techniques can be validly used in other cultural settings, since they can tap into non-organic learned personality patterns that are a function of "universally recognisable capacities in human beings that go through a process of maturation" (p 285). De Vos (1976)

argues that a tendency to think rationally and to regress under emotional stress are universal, as is the capacity for altered states of consciousness; therefore projective studies which tap these universal sources of human processes of adaptation can extract useful data that other methods may miss.

The message carried across in the review, is be fair and sensitive to your subjects when using psychological measures whose norms are derived from a different cultural milieu, as they are implicitly unfair. Several modifications to the test may be necessary to explore the same constructs and interest variables.

CHAPTER 6

RESEARCH METHODS

1. Introduction

Having reviewed the literature on the assessment of pain and current treatment methods, this chapter describes the methodology for three studies, namely the perception of pain and the language of pain in Setswana-speaking subjects; the effect of pre-operative moods on post-operative acute pain; and the measurement of chronic pain and its psychological treatment.

Each of the three studies will be dealt with separately. Study 1 examines how Setswana-speaking subjects perceive and describe their pain. The study explores the contents of their pain language. The research questions of this study may be summarised as follows: *From the perspective of the subjects, how is pain perceived, described, and experienced? What are the signals for pain? Do age and gender mediate the perception and experience of pain? What are the contents of the pain language? Does the pain language correspond to the theoretical concepts and descriptors of other languages of pain?*

Study 2 focuses on pre-surgical moods and their effect on acute pain following surgery. The reliability and validity of the Profile of Mood States and the Wisconsin Brief Pain Questionnaire will also be examined.

The research questions of Study 2 are: *Is there a relationship between pre-surgical mood and post-operative*

pain? How reliable and valid is the Wisconsin Brief Pain Questionnaire (WBPQ) for assessing acute pain in Setswana-speaking subjects, when compared to the Visual Analogue Scale (VAS)? How reliable and valid is the Profile of Mood States (POMS) for assessing the moods of Setswana-speaking subjects?

Study 3 deals with the psychological treatment of chronic cancer pain, assessing the effect of cognitive-behavioural therapy and reassurance therapy. Thus the research questions for this study are: *Are a combination of cognitive-behavioural therapy and pain medication, and a combination of reassurance therapy and pain medication more potent treatments for pain than pain medication only?*

2. Justification of the Preliminary Studies

As we have seen, the perception of pain and the perceived intensity of pain sensation influenced by individual and cultural factors. Each culture or group has its own language of distress, and its members have their own specific way of signalling both verbally and non-verbally that they are in pain (Kleinmann, 1990). To study only objective indicators of pain from the researcher's perspective, would therefore not get at the essential phenomenon of pain as experienced by the subjects.

One of the aims of Study 1 is to yield more information on the language of pain. The language of pain is useful as a diagnostic tool as well as a treatment aid. Some of the questions on pain measurement (WBPQ) request the subject to describe his or her pain. Therefore, the

study of pain language prepares the necessary ground work for the study of pain measurement.

Research on the language of pain emphasises the expression of one's physical, cognitive, and emotional state. According to Munhall and Oiler (1986), "symbols we choose as expression either implicitly or explicitly reveal and conceal who we are, both to ourselves and to the world at large. They lay open our assertions, propositions, assumptions, beliefs, values and priorities" (p.5). This simply means that our language and the use of specific sets of words may reveal or conceal our physical, emotional and mental state

With reference to the study of the language of pain, it is important to establish scientifically the words used to describe pain, words used to connect pain with emotions, and words used for evaluating the severity of pain. Thus, the language of pain as used by Setswana-speaking subjects needs to emerge. Kleinmann (1990) notes that how pain is described, is influenced by a number of factors. These include:

- (a) language facility,
- (b) familiarity with medical terms,
- (c) individual experiences of pain, and
- (d) lay beliefs about the structure of the body.

These aspects are important for the treatment of pain, especially when using cognitive behavioural therapy. This treatment method requires the subject to fully describe the sensation of pain, the feelings accompanying pain, and the meaning attached by the individual to the overall pain experience.

The assessment of moods (Study 2) also prepares the necessary ground work for the study of the assessment and treatment of pain, since mood plays an important role in pain perception and treatment.

3. Research Setting

The context in which the pain is experienced, is important as it is expected to affect the perception of pain. Context is both internal and external. For Kleinmann (1990), internal context includes prior experience with pain and expectations about pain that each subject brings to the interview or assessment. External context includes the actual setting in which the interview or assessment takes place and other environmental influences acting upon the interview. The external context of physical trauma was used as a medium applicable to all subjects in this study of the perception of pain.

The setting for the study was Ga-Rankuwa Hospital, which is an academic hospital attached to the Medical University of Southern Africa (Medunsa). The hospital is situated 31 kilometres north of the metropolitan city of Pretoria, on the border of what was formerly known as Bophuthatswana.

4. Research Methods For Study 1: The Apperception of Pain and the Language of Pain

4.1 Aims of the Study

The aims of Study 1 are as follows:

- (a) to investigate the ideational content associated with pain using the PAT in an adult male, adult female, and child.
- (b) to investigate the role of gender and age in perceived pain intensity using the PAT.
- (c) to investigate the contents of a pain lexicon among Setswana-speaking subjects using the PEIQ.

A qualitative approach stressing the person's inner experience, strivings, and perceptions is employed for the pain perception and pain language study, because the object of the study is to investigate the two stimulus materials including the world of the person as perceived and experienced by that person (emic perspective). Using the emic perspective means refraining from imposing the researcher's beliefs on the data.

4.2 Recruitment of Subjects

Subjects for the pain group were recruited at Ga-Rankuwa Hospital in the obstetrics-gynaecology wards and the general surgical wards through the ward physician, ward nurses, and the chief consultant. The latter gave the researcher access to the ward registers. The study was

announced to physicians, nurses, and patients as a study on how people perceive and how they describe pain.

A no-pain group of university students and workers was recruited as follows:

- a) The various lecturers teaching third year and fourth year medical students were approached with the request to inform their students of the research project and ask them to volunteer as subjects.
- (b) The university workers were approached both in a formal and an informal way by the chief researcher. The worker's foreman/steward was informed of the project.

Proficiency in the Setswana language or the Northern Sesotho language was regarded as one of the most important inclusion criteria, as all the measuring instruments were administered in these two languages. The subjects from the neighbourhood mix both languages in their everyday speech. Proficiency was operationally defined as the subjects native language. All the subjects had to be at least 18 years old to be admitted to the study. The pain group had to fulfil one other criterion: they were to have had pain in the past month and at present.

A name list of interested students and workers was drawn up by the researcher and every third subject was chosen for the project. Both the pain and no-pain subjects signed a consent form after agreeing to participate in the study.

A total of 66 subjects took part in the study. The pain group was made up of 36 individuals who were in the general surgical and obstetric-gynaecological wards for a laparotomy (incision of the abdomen) and were experiencing acute pain. Twenty-four of these subjects were females and 12 were males.

The pain subjects were selected as they came into the wards and were hospitalised for elective and non-elective laparotomies for various physical conditions. For example, in the gynaecology wards, laparotomies were performed for tuboplasty and myomectomy, whereas in the surgical wards laparotomies were done on patients with stabbed abdomen, abdominal bullet wounds, colostomies, and perforated ulcers. Therefore, some of the subjects had pain prior to the surgery.

The ages of the pain subjects ranged from 18 to 58 years with a mean age of 33 years and mean level of education was 5,5 years of schooling. Some of the subjects had no formal education. None of the subjects reported any form of psychiatric disorder or any significant psychological disturbance. This was determined by means of a biographical questionnaire which will be discussed later on.

Thirty subjects made up the no-pain group. These were third and fourth year medical students and unskilled university workers who were not experiencing pain. The ages of the subjects ranged between 23 and 54 years with a mean age of 34 years. There was an equal number of males and females. None of the subjects reported any form of illness or psychiatric disorder. Eight subjects reported recent deaths in the family, but did not appear to be clinically depressed. Two subjects reported previous surgeries. Like the pain group, seven of the university

labourers had no formal education and their training, compared to that of the medical students, is limited. Hence an incompatibility in training existed between the labourers and the students. University students had 15 to 16 years of schooling whereas the labourers had 0 to 9 years of schooling, with a mean level of education of 10 years of schooling for the whole group.

4.3 Materials

Two questionnaires, the Pain Eliciting Incidents Questionnaire (PEIQ), and the Pain Apperception Test (PAT), devised by the researcher were used. A biographical questionnaire was included. (Appendix C).

4.3.1 Development of the materials

This section outlines the methodology for the development of the two instruments, the Pain Eliciting Incidents Questionnaire (PEIQ) and the Pain Apperception Test (PAT). The PAT aims to gather perceptual information with regard to the habitual ways of responding to pain. The PAT was constructed by the researcher with three stimulus cards on which respondents could project their perception, needs, feelings, and concerns with regard to the situations portraying physical trauma which inevitably leads to pain. (Refer to Appendix A). Since the responses to the stimulus cards are open ended, it is assumed that the structure imposed by the subjects or testee on the task

is a reflection or projection of the subject's own individual perception of the phenomena.

The PEIQ (Appendix B) aims to gather information on the descriptors or the language of pain. A key feature of the methodology in its development is the use of input from health professionals and the literature on pain. The chief researcher first drafted a provisional list of 15 traumatic incidents which could lead to pain. These items were discussed and accepted by health personnel in dentistry and internal medicine. Thereafter a series of focus groups were held with patients, well persons, and health personnel to consider the questionnaire, revising it where necessary and also determining the number of items to be finally included in the questionnaire. Thereafter two focus groups were held, focusing on the PEIQ and the PAT respectively. Each of the two focus groups consisted of nine individuals, demographically representative of the target population in terms of gender and ethnic group but not in terms of educational background and socio-economic status, as the individuals who took part in the focus groups were slightly better educated.

For gathering data on the PAT, the group consisted of nine individuals comprising of two health professionals, three graduate students in psychology (masters students and honours students), and four patients. For gathering data on the PEIQ, the group consisted of two health professionals (nursing sisters), two unskilled labourers employed by the university, three patients with primary school education and high school education, and two third-year medical students.

Participants were briefed on the aims of the project and the rationale of the PEIQ and PAT. This was stated as follows:

The aim of the PEIQ is to elicit information on the descriptors of pain. It is thus essential to devise a questionnaire that will identify the language of pain. The questionnaire has to be easy to administer, acceptable to respondents, and fairly short comprising a set of items which elicit common pain adjectives likely to be encountered in the various clinical settings with pain and outside these settings. The PEIQ should assess the respondents' pain experience with each item.

For the PAT the respondents were given the following aim and rationale:

To elicit information on the expectations and concerns accompanying perceived pain arising from perceived traumatic situations. This aim is based on the notion that participants will project their conscious and unconscious mental processes into their stories about the pictures. Their description of each picture should include what is going on at the moment, what led up to it, and what the outcome might be for the characters on the stimulus cards, also exploring the differential intensity in perceived pain experienced by the three characters depicted on the stimulus cards.

The participants were further told that pain is a broad concept, incorporating in a complex way the person's physical state, psychological state, and personal

relationship to the salient features of the perceived traumatic environment. This highlights the view that pain and pain perception refer to a subjective evaluation of an individual's distress and views embedded in a social environmental context.

The procedure followed in the focus groups involved detailed discussions in which participants were asked about each item of the PEIQ and PAT, ensuring that the underlying constructs of pain were clearly understood and had a core meaning for every participant. On the basis of the focus group data both the PAT and PEIQ were revised.

A biographic questionnaire was used to obtain personal details of the subjects, namely age of subject, gender, date of birth, marital status, education, occupation, number of children and dependants, previous visits and admissions to hospital, health history, including psychiatric history, previous surgeries, health of family members, including the subjects' parents, and deaths in the family within the last two years (see Appendix C). Some of these items were identified from the literature, whereas others are based on the researcher's experience with pain patients.

4.3.2 Administration of the questionnaires

The entire PEIQ takes about 30 minutes to complete. The PAT takes about 45 minutes to complete. Both questionnaires were presented orally to each subject with the researcher reading each item to the subject one at a time and recording the responses to each item ad verbatim.

The oral administration of the questionnaires was dictated by the high levels of illiteracy amongst the intended samples, which makes self administration impossible.

For the PEIQ descriptive responses are required, with the subject/respondent providing the descriptors for each of the 11 questions. With reference to the PAT, descriptive responses are also required, with the respondent providing responses to the following four open ended questions:

- (a) Tell me what you see.
- (b) Tell me what is happening.
- (c) Tell me how this will turn out and why it will turn out this way.
- (d) Tell me who in these pictures is in more pain and why.

4.3.3 Translation of the questionnaires

Both the PEIQ and the PAT were concurrently formulated in English and Setswana. The translators were fully briefed to the objectives of the study and their roles. They were informed that their primary task was to translate each item of the PEIQ and PAT back into English and Setswana such that the meaning of each item is retained.

The first translator, who is a trilingual psychiatrist, was given the original English version of the PEIQ and asked to translate it into Setswana. The second translator who is a masters student in Setswana with a

background in psychology, translated the Setswana version back into English. This resulted in two English versions of the PEIQ which could be compared.

A panel of two judges, a bilingual masters student in English, and a monolingual lecturer in English compared the back-translated English version with the original version and noted items containing discrepancies in meaning. Items that showed semantic non-equivalence were referred back to the translators responsible for the translation for rewording.

The same procedure was followed for the translation of the questionnaire into Northern Sesotho.

4.3.4 Assessing equivalence

This involved administering both language versions of the questionnaire to Setswana-English bilinguals as an important step in the translation of the instruments. Three bilingual patients, who could speak English and Setswana were used. These patients were admitted in the obstetric wards and were to all intents and purposes like the subjects in the proposed study. They were requested to analyse each item of the PEIQ and the PAT with reference to the suitability of the language used. The results indicated that the language used for the items of the PEIQ and PAT in Setswana and English was simple and straightforward, and the requirements, as outlined in the two questionnaires, were easy to follow and the meaning of the items was clear. With reference to the PEIQ, the subjects mentioned that it was not always easy to describe

the pain incidents which were not in their past experience. For example item 3 "if someone were to chop off your hands with an axe how would you describe the resultant pain." Despite this shortcoming of the item, it was retained in the questionnaire, since such physical trauma is commonly seen by medical practitioners at the Casualty Department of Garankuwa Hospital. This step produced the final stage of the questionnaires.

4.4 Procedure

The experimental subjects (hospitalised patients) were interviewed at their bedside in the hospital wards. The control subjects (university students and workers) were interviewed in the researcher's office at Medunsa.

The PAT and the PEIQ were administered to each individual subject orally, starting with the PAT. Each subject was given one PAT card at a time, starting with the picture of the adult male, followed by the picture of the adult female, and lastly that of the child with the following verbal instructions:

- Tell me what you see
- Tell me what is happening
- Tell me how this will turn out and why it will turn out that way
- Tell me who in the three pictures given to you is in more pain and why

After completing the PAT, the PEIQ was given to the same subject with the following verbal instructions: "Here are 11 sentences describing events which are normally considered as being painful. I will read each sentence to you and I would like you to describe the resulting pain." The researcher used two copies of the same questionnaire, one given to the subject to hold and the other held by the researcher.

The verbal responses to the two questionnaires (PAT, PEIQ) were recorded by the researcher on a writing pad. If subjects were hesitant to give the requested information, they were informed that the answers sought were neither right nor wrong, but that the researcher was interested in the individual's views.

4.5 Analysis of Data

The answers to the PAT were subjected to a phenomenological analysis using a procedure described by Colaizzi (1978). The procedural steps used, were as follows:

- (a) A photocopy of all the scripts were passed on to the assistant researcher for indepth analysis. All the scripts were read, one at a time.
- (b) Significant statements were extracted from each description, using a highlighter to identify phrases and sentences that directly pertained to the investigated phenomenon. Statements that were merely repetitions were eliminated.

- (c) Meanings were formulated by spelling out the approximate meaning of each significant statement; the meanings arrived at did not significantly depart from the original description.
- (d) Clusters or themes were formed from the aggregate of formulated meanings. A theme comprises specific and central ideas expressed by the subjects in response to the PAT, reflecting the frequently named problems, concerns or perceptions of the subjects.
- (e) After the themes were identified independently by the chief researcher, a meeting was held to discuss the chief researcher's findings and to compare her findings with those of the assistant researcher. Any discrepancies found necessitated going back to the original description of themes in order to validate them. This was done to see if there was anything that was not accounted for in the clusters of themes, and whether the clusters contained information which was not in the original. If either of the above were true, a re-examination was necessary.
- (f) To verify the meaningfulness and accuracy of the categories, the scripts were re-checked by two judges who are tutors in research methodology and who had a background in qualitative analysis. The idea was to determine if the categories were reproducible. The judges also had to look at the internal homogeneity of the categories, and their distinctiveness.

The of analysis of the PEIQ was discussed by the chief researcher and her research assistant. It was agreed upon that the procedural steps would be as follows:

- (a) All the scripts were photocopied by the chief researcher for the research assistant who was a masters student in clinical psychology.
- (b) Pain descriptors were defined as the qualitative words, classifying words, specifying words, comparative words, or superlative words used by subjects to describe the pain in response to the PEIQ.
- (c) All the scripts were read by each researcher independently.
- (d) Analysis of the PEIQ involved searching the transcripts for words, phrases, adjectives, and terms used to describe pain, locating the key phrases or words that speak directly to the phenomenon of pain.
- (e) The reliability of coding was addressed by determining the percentage of agreement. An average percent agreement of 80% or greater was deemed to be necessary to establish intercoder reliability.
- (f) To verify the accuracy of the descriptors and their credibility, scripts were checked by a judge who is a tutor in research methodology and qualitative analysis. The idea was to determine if the same adjectives were reproducible.
- (g) Finally, frequency tables of these pain adjectives were drawn up and the resultant

adjectives for pain were compared with the aid of Melzack and Torgerson (1971).

5. Research Methods for Study 2: The Effect of Mood on Post-operative Pain

5.1 Aims of the Study

The aims of the study are as follows:

- (a) to investigate the reliability and validity of the POMS, VAS, and the WBPQ.
- (b) to investigate the relationship between pre-operative mood and post-operative pain.

5.2 Recruitment of Subjects

Subjects were recruited from the obstetrics and gynaecology wards. A name list of patients who were likely to undergo surgery was drawn up by the nurses in the ward.

The researcher used this name list to select subjects for the study. Every fourth patient on the ward list scheduled for laparotomy was selected as they came into the wards. After being selected, the researcher had to establish from the subjects if they spoke Setswana or Northern Sesotho. If this was the case, they were requested to participate in the study. All the subjects had to be at

least 18 years old to be admitted to the study. The subjects had to fulfil two other criteria:

they were to have had pain in the past month and at present;

they had to have been examined and diagnosed by the ward obstetrician-gynaecologist as candidates for laparotomy. The anaesthetist had to confirm their booking for the operation.

The sample consisted of 58 female patients who were admitted to the obstetrics and gynaecology wards for a laparotomy. The ages of the subjects ranged from 18 to 56 with a mean age of 32,2 years. Thirty three (56%) of the subjects had primary school education (no education to eight years of schooling). The remaining twenty five (44%) had secondary school education with 14% having obtained a matric certificate. As far as their medical history is concerned, 65,5% of the subjects had visited the doctor or the hospital within the last 12 months, 53,4% had been previously admitted to a hospital, and 37,9% of the subjects had previous laparotomies. None of the subjects reported any previous psychiatric illness.

Apart from the visit to the doctors, an enquiry was made into the degree of pain experienced by the subjects over the past month as well as the effect it might have had on their lives.

5.3 Materials

Three questionnaires were used, namely the Profile of Mood States (POMS), the Visual Analogue Scale (VAS), and the Wisconsin Brief Pain Questionnaire (WBPQ). The POMS and WBPQ were not specifically developed for South African adults. Before the present study could be embarked upon, it was therefore necessary to translate them into Setswana and Northern Sesotho.

When the various questions of the WBPQ and the POMS are considered, it can be seen that they require subjects to be verbally analytic as far as their personal experience with pain and mood are concerned. The POMS could be challenging to subjects who are without any formal education. However, the POMS and the WBPQ were administered individually, so that the researcher could establish rapport with each subject, and address any problems that arose from the subjects not understanding the questionnaire.

Tests should use a form of language that is widely familiar. In particular, South African subjects may have difficulty in understanding some American phrases. The majority of subjects used in this study have a primary school education in their mother tongue (Setswana). For those subjects who have had a more extensive formal education (high school and university education) English is their second language, but even for them words like "peevied", "bushed", and "grouchy" may be meaningless or have different connotations. A standard English dictionary was used to find equivalents for these words without altering their meaning.

The question: "During the past week how much did the state of your health, including any pain, interfere with ... enjoyment of life," could also present some problems. The words "enjoyment of life" undoubtedly evoke very different images for the impoverished subjects than they do for the middle-class subject. This may make cross-cultural and interclass comparisons less meaningful.

Since some of the items of the WBPQ are non-verbal in nature, few adaptations were required. The only changes that had to be made were in items 6, 7, 8 and 10, where a drawing more like a speedometer was used to indicate the levels of average pain, worst pain, pain now and pain relief. The subject indicates her pain by placing the pointer in the area of her choice. No pain is on the extreme left side, and estimates of the intensity of pain increase as one moves the pointer to the right side of the scale. The same procedure applies to indications of pain relief.

5.3.1 Translation

Three trilingual clinicians with post-graduate qualifications, one in psychiatry and two in clinical psychology, and a bilingual professional teacher currently studying a masters degree in Setswana, were employed to translate the questionnaires. One clinician uses Northern Sesotho as her primary language (mother tongue) and she did the translations into Northern Sesotho.

A Setswana-speaking clinician and the Setswana-speaking teacher were employed to translate both the POMS and WBPQ into Setswana. The third clinician who is trilingual, blindly translated the questionnaires back from

Setswana into English and from Northern Sesotho into English. The three English versions were then compared and where differences were found, they were discussed and resolved. Finally, an independent clinical psychologist who is trilingual, checked the translations against the originals.

To determine the suitability of the language used, the translators were asked to analyse each item of the WBPQ and the POMS to ensure that the language is understandable. There was consensus among the translators with reference to the language used that it was understandable and that the instructions were clear.

5.3.2 Test administration

In Western settings these questionnaires are usually given to subjects to complete at a time of their choice. In South Africa, due to a high illiteracy rate, if questionnaires are given to a subject to complete at her or his leisure there is no guarantee that the subject has read or understood the items or that the replies are his or her own.

In an attempt to reduce these difficulties, all questionnaires were administered individually and orally, with the interviewer holding one copy of the questionnaire and the subject holding another, presumably reading it. The subject was asked to give responses to the questions posed to her by the interviewer. Where subjects needed clarification, every effort was made to sound completely neutral and not to give unusual emphasis to any word in the items. The replies were recorded by the interviewer on her own blank page with the subjects name on it. To reduce

reluctance on the part of the subject to speak freely, especially during the administration of the PEIQ, the subject was frequently reassured by the interviewer that there were no right or wrong answers and that her views were sought.

Each subject was requested to supply the researcher/interviewer with biographical information pertaining to his or her name, age, home address, gender, standard of education, marital status, dependants, and past medical history.

5.4 Procedure

After obtaining informed consent from the subjects, the study was explained to the subject as a study on the measurement of pain and moods and assessing both the history and severity of pain. The interviews were conducted by the researcher at the bedside of the subject (patient), using the Profile of Mood States (POMS), the Visual Analogue Scale (VAS), and the Wisconsin Brief Pain Questionnaire (WBPQ).

The POMS was used to assess pre-operative moods. Mood assessments were done 24 hours before the operation. During this time the researcher presented the subject with the Profile of Mood States saying:- "Here are words describing people's feelings. I would like to find out how you have been feeling during the past week and at present." I will read each item to you and you should indicate to me whether the information applies to you or not by giving one of the following responses: not at all, a little, quite a

bit, moderately and extremely. I will assign a score for you ranging from 0 to 4 depending on the phrase you have used to describe your feeling."

After the laparotomy pethedine hydrochloride was used for alleviating post-operative pain. The drug was given intramuscularly. The drug works at its peak during the first 30 to 60 minutes after administration. The half-life of the drug is regarded as two to three hours after administration, but factors such as body weight affect its metabolism.

The pain assessments were done at the following times after the operation:

Day 1

- (a) no medication - when patients arrived in the wards from the theatre and were without pain medication.
- (b) medication peak - 30 minutes after medication, when the subject could be considered to be under optimal pain medication.

Day 2

- (c) trough level - when pain medication could be considered to have worn off.
- (d) medication peak - when pain medication could be considered to be optimal in its effect.

5.5 Analysis of Data

The POMS data consisted of the responses of 58 laparotomy patients. To determine the reliability and validity of the POMS, the answers to the POMS were collected for each of the 58 laparotomy patients/subjects. This data was subjected to a scale analysis in an attempt to verify the six-scale structure of the POMS. On the basis of this scale analysis it was then decided whether other scales should be derived. Subsequently the internal consistency reliabilities were computed for all six factors as well as for newly derived factors or scales. Correlations between all scales were also computed.

To determine the relationship of mood states to post-operative pain, correlations were calculated between all mood state scales which showed acceptable validity and reliability, and post-operative pain measures as given by the VAS and WBPQ.

The reliability of the pain measures (the VAS and WBPQ) were calculated as test-retest reliabilities by correlating measures of day 1 with measures of day 2. A comparison of the mean pain level before and after pain medication was also performed for measures taken on day 1 and day 2 in order to evaluate the validity of the VAS and WBPQ. Finally, the VAS measures were correlated with WBPQ scores of the same occasion to establish the concurrent validity of these pain measure instruments. The level of significance used was 0,05. Research methods for Study 3 will now be discussed.

6. Research Methods for Study 3: The Psychological Treatment of Pain

This study assessed the psychological treatment of cancer pain using three different treatment methods, namely cognitive behavioural therapy combined with medication, reassurance therapy combined with medication, and contrasted with medication alone.

6.1 Aim

The aim of the study was to test the effect of cognitive behaviour therapy and reassurance therapy combined with pain medication on the experience of pain. This was contrasted with treatment of pain by medication alone.

6.2 Subjects

Forty five female cancer patients admitted to Garankuwa Hospital were randomly assigned to one of three treatment groups:

- cognitive behavioural treatment group (n = 15),
- reassurance therapy group (n = 15, and
- a medication only treatment group (n = 15).

Every third Setswana- or Northern Sesotho-speaking patient in the ward had a chance of being selected. Subjects were between ages 29 and 69, with a mean age of 47,13 years.

Twenty four subjects (53%) had a primary school education with seven years of formal schooling. Twelve subjects (27%) had some secondary school education (nine years of schooling), and the remaining nine subjects (20%) had twelve years of schooling. Twenty three of the subjects (51%) were married, twelve (27%) were single (never married), and ten of the subjects (22%) were divorced.

As far as occupations are concerned, twenty six subjects (58%) were unemployed and nineteen (42%) were gainfully employed. Twenty three subjects (51%) had one to three children, thirteen of the subjects (29%) had four to six children, while nine of the subjects (21%) had seven to twelve children.

Information on the history of their pain revealed that thirty one subjects (69%) knew of their diagnosis 1 to 12 months prior to the current investigation, ten subjects (23%) reported having known of their diagnosis 13 to 14 months prior to the current study, and four of the subjects (8%) had known about their diagnosis approximately 36 months prior to the current study. All the patients in the study suffered from gynaecological cancer. Gynaecological cancer is divided into four stages, characterised by the spread of the disease to the adjacent organs.

Stage 0 : Histology suggestive of malignancy but not proven.

Stage 1 : Carcinoma confined to the corpus.

Stage 2 : Carcinoma extends beyond the cervix but not to the pelvic wall and not to the lower third of the vagina.

Stage 3 : Carcinoma extends to the pelvic wall or lower third of the vagina.

Stage 4 : Carcinoma extends beyond the pelvic wall and has invaded the mucosa of the bladder or rectum.

The subjects of this study were in either Stage 2 or Stage 3 of the disease.

6.3 Materials

Three questionnaires were used. The VAS and the WBPQ were used to assess pain and the POMS was used to assess moods. An audio tape recorder and head phones were used for recording the various therapeutic techniques (see Appendixes G to O for the full text of the tapes).

6.4 Procedure

The experimental method used was a pre-test - post-test control group design. Subjects participating in the research were tested on all measures of pain and mood before any intervention and retested on pain measures on completion of the intervention after two weeks. The pain measures were repeated after a three months interval.

Prior to informed consent, the cognitive behavioural therapy group and reassurance group were told by the chief researcher that she was collecting data on cancer pain and mood and assessing a programme for pain control. The control group was told that the researcher was collecting data on cancer pain and moods and the effect of medication on pain.

The pre-testing of experimental groups I, II, and III was done prior to any training, using the POMS, WBPQ, and VAS for baseline assessment to ensure that the three groups did not differ on moods and pain prior to treatment.

The pain medication consisted of Dolorol (30ml) given orally every four hours. The subjects could not be taken off their medication as this is considered to be unethical.

Each subject had to give information about the pain history, pain intensity, and the length of time since they knew of their diagnosis. This information is tapped by the various items of the WBPQ. Thereafter the subjects had to give information on the current pain intensity, on both the VAS and the WBPQ. Subjects were told: "Here are two questionnaires which measure the history of pain and the intensity of pain. I would like you to inform me about your pain now. The VAS is represented by a straight line 10 cm long which represents your pain intensity. The extreme left end point indicates no pain and as you move along the line from the left to the right, the pain intensity increases with the extreme right end point indicating unbearable pain. You are requested to place a mark anywhere on this straight line to indicate the intensity of the pain at present."

Thereafter the WBPQ was presented to the subjects as follows: "The WBPQ is a pain measure which evaluates your

pain history, location of pain, quality of pain, and how pain interferes with your feelings (mood) and everyday activities. This questionnaire also evaluates the treatment received for pain, and the amount of relief obtained from the pain treatment. We are interested in evaluating your pain before medication and after medication and before other pain treatments which we will explain to you in detail at some stage later. The pain intensity scale and the pain relief scale are represented by a drawing similar to a speedometer with a pointer. If you place the pointer, which is moveable, to the extreme left side of the scale, it indicates no pain and the extreme right side of the scale indicates pain as bad as you can imagine. Therefore, the pain intensity increases as you move along the scale from the left to the right. You are requested to move this pointer and place it anywhere on the scale to indicate your pain now."

Pain Group I - Pain medication and cognitive behavioural therapy.

The cognitive behavioural therapy was presented by the chief researcher and the evaluations for pain, prior to the intervention and after the intervention, were performed by a research assistant who did not have any prior knowledge of the patients. The therapy was divided into the following four phases:

Phase 1 - Education. This phase was designed to provide experimental group I with a variety of pain management techniques. During this phase the group was given taped information on the multi-dimensional view of

pain (see Appendix G). This provided the rationale for the psychological treatment of pain and was followed by a discussion of the taped information.

Thereafter, the group was asked to provide the researcher with information about their pain history and current pain, their thoughts, feelings and fears about pain, how their bodies responded to pain, and what they usually do to hold back feelings and bodily sensations accompanying pain (Appendix H). The rationale behind this procedure is to demonstrate to the subjects the mind-body linkage using appraisals that are personal to the subjects as well as to determine the precise nature of pain, maintaining factors, existing coping skills, and resources. This information was also vital for the re-conceptualisation of pain, based on the individual's personal experiences.

Phase 2 - Skills Training. During this phase the group was told that it is possible to unlearn maladaptive thoughts and feelings by learning new ways of thinking about pain which may forestall emotions as well as the physical havoc caused by pain.

Each exercise or skill that was going to be demonstrated to them by the researcher could be monitored by each one of them for its therapeutic effects (efficacy). They were also informed that people who had used these skills before reported feelings of well-being, discharge of pain and tension from the body, less pain awareness, and increased awareness of their surroundings.

A skills training phase followed. Subjects were first given training for Progressive Muscle Relaxation Therapy (Appendix I), followed by a discussion. The training was given in a group of normally not more than five subjects.

Thereafter, autogenic training (Appendix J) was given. This was followed by a discussion of the perceptions and initial experiences of the subject with regard to these two approaches. The importance of breathing correctly through one's nose as a means of pain control was emphasised, as well as focusing on different body parts, whenever questions from the group alluded to this.

Before the teaching of imagery, the subjects were requested to imagine themselves going on a bus trip (Appendix K). Thereafter the subjects were asked about their experiences during this guided imagery. The reason behind this exercise was to help the researcher to spot those subjects who were unable to use their imagination and those who were good at this. Following the guided imagery, the subjects were introduced to a variety of imaginal, pain coping skills (Appendix L). They were first introduced to attention diversion skills, then context transformation, for example, imagining pleasant scenes. A discussion followed after each technique.

Based on the findings of Turk et al. (1983), subjects were encouraged to explore their own self statements. These were discussed, followed by the rehearsal of the exercises.

Phase 3 - Rehearsal. The goal of rehearsal was to continue the re-conceptualisation of pain, to ensure that the subjects could execute the necessary behaviours for dealing with pain, to ensure that they were able to monitor their thoughts, and to implement new ways of thinking in response to pain. The subjects have to keep in mind their preparation for pain, confrontation with pain, assessment of critical moments when they should apply the pain control skills, and reflections on their performance (Appendix M).

The rehearsal phase was introduced with further training in progressive muscle relaxation and autogenic training. After seeing to it that the subjects were fully relaxed, guided imagery, including all of the imaginal coping skills taught, was used to illustrate the use of the technique.

Phase 4 - Application. The objective of this phase was to prepare the subjects for the implementation of the taught skills without the supervision of the researcher. Subjects were told that engaging in pain control techniques involves a change in life style. Hence it is important that they practice and apply the pain management techniques on their own at least two or three times per day in hospital, at home, and whenever there is a possibility of pain. It was emphasised that learning pain control techniques and applying them, are not the same thing.

Subjects were told to remember to compliment themselves and to inform the researcher and significant others how well they are doing. They were asked to keep notes of their success if possible.

Ten sessions of 90 minutes each were used to teach the pain management skills. The researcher attempted to be warm and empathic throughout. Consistent attempts were made to present the treatment as a useful skill for coping with cancer pain. Every effort was made to make the training procedure personally relevant for the subject and to encourage the attitude that the subject can be active in his or her own pain control.

Pain Group 2 - Pain medication and reassurance

Phase 1 - Education. No specific skills were taught to this group. The reassurance group had four sessions with the researcher, which revolved around taped information on the multi-dimensional view of pain (Appendix G). A discussion followed, based on the taped information. Thereafter, the researcher sought information from subjects on their previous experience with pain and some of the factors that contribute to pain (Appendix H). Following this, the researcher informed the subjects that their experiences with pain were probably due to illness. Taped information on illness and pain was played (see Appendix N). After listening to the tape, a discussion followed. At each point, the information was related to the subject's personal experience with pain. As with the cognitive behavioural therapy group, the researcher was warm and empathic throughout the four sessions.

Supportive counselling was given whenever appropriate, depending on the needs of the individual group members.

The researcher also indicated that the discussions would assist the subjects in coping with their pain. Therefore, subjects were referred back to the contents of the taped information whenever necessary.

Phase 2. During this phase the researcher played a tape on the importance of discussing their feelings in regard to pain. The tape focused on subjective feelings of pain, why the subjects should talk things out and how failure to discuss one's feelings can be detrimental to their health (Appendix O).

Thereafter a discussion followed, based on the contents of the tape, and these were personalised depending on the individual needs of the subjects. Following both Phase 1 and 2 of the study, the researcher visited the subjects daily to find out how they were coping with pain. These visits were done throughout the two-week period of treatment.

Pain group 3 - Medication only control group

After the initial assessment, the medication only control group was met at the end of the two-week period for further pain assessment and after an interval of three months for a third pain assessment.

6.5 Analysis of data

The main purpose of Study 3 was to determine the efficacy of the three treatment methods for the control of cancer pain. The question posed is whether a combination of cognitive behavioural therapy and medication is more potent than a combination of reassurance therapy with medication or the treatment of pain by medication only.

Secondary purposes of Study 3 were to determine the relationship of moods to pain experience before the onset of treatment, and investigate the validity of the WBPQ and VAS for measuring chronic cancer pain. The POMS was administered to each of the 58 laparotomy patients individually before the operation was performed. The responses were subjected to an item analysis and the Cronbach's alpha was computed for each of the six factors.

The coefficients derived are measures of internal consistency of the six factors. Thereafter a correlation was sought between vigor-activity and depression-dejection and pain before medication, to assess the relationship of depression to pain scores before the onset of treatment.

For the differential effectiveness of pain treatment, the pain scores of the group receiving cognitive behavioural therapy combined with medication, the group receiving re-assurance therapy combined with medication, and the group receiving medication only were compared two weeks after treatment and three months after treatment with their pre-treatment pain scores. An F-test was performed to test whether the means of the three treatment groups were significantly different from one another. An analyses of covariance F-test was performed on the adjusted post-treatment means.

To assess the validity of the VAS and WBPQ, the scores of the patients were compared before treatment, after two weeks, and after three months, to see if they reflected a treatment effect.

The results of the three studies are presented in the next chapter.

CHAPTER 7

RESULTS OF THE THREE STUDIES

This chapter focuses on the findings of the three studies. Each study will be dealt with individually.

1. Study 1: Pain Apperception and Pain Language Study

The purpose of this study was to investigate the ideational content of perceived pain with regard to pain in an adult male, female, and child; and to investigate the descriptors of pain in Setswana-speaking subjects.

1.1 Medical History of the Subjects

The medical history of the subjects is summarised in Table 7.1.

Table 7.1: Medical history of the 66 subjects

Symptom or incident	Yes %
See doctor or visit hospital in last 12 months?	33.3
Previous laparotomies	18
Psychiatric illness	0
Pain at onset of illness	22.5
Previous admissions	38

From the table it can be seen that some of the subjects had pain and other medical problems before the onset of the study.

1.2 Results of the Pain Apperception Test

The results of the PAT are arranged according to the question posed to the respondents and the common thread of ideas, perceptions, and concerns that emerged in response to the three stimulus cards. These major ideas are called themes. The results are presented in two columns representing the two groups of subjects studied.

Question 1: "Tell me what you see." Responses to this question made it clear that both the pain and no-pain groups shared the same perceptions, as illustrated by the following extracts from the responses :-

Theme: A man, woman and child run over by a motor vehicle

	Pain group	No-pain group
1.	A man run over by a car	A man run over by a car
2.	A woman on the ground and a man driving a car	A woman lying on the ground and a car and a man behind the car's steering wheel
3.	A young child (boy or girl) and stones on the ground next to the child and the car with a man driving it	I see some stones, a car with a man driving it and a child lying on the ground

The response rate to this question was 100% and there was complete agreement in both groups on the perception of a woman, a man, a child, and a car. Not all the respondents mentioned stones. The latter were

mentioned by 71% of the pain group and 80% of the no-pain group.

Twenty nine percent of the pain subjects and 20% of the no-pain subjects saw the car travelling at a high speed, the driver not stopping at a robot or intersection, or the driver not looking where he was going or being absent minded.

Question 2: "Tell me what is happening". All the subjects responded to this question and the common theme is the presence of pain due to physical trauma, disturbance, and shock. Among the responses offered were the following:

Theme: Pain, physical trauma and emotional trauma brought about by a car running over a man/woman or child's legs

	Pain group	No-pain group
1.	A woman run over by a car, her knees are broken because the car seems to be running over her knees	I see a woman with a car over her knees, her knees appear to be broken, she is in severe pain due to the fracture of knees sustained at the time of the accident
2.	It is a woman who seems to be in great pain looking from her face which seems to be pulled	A woman who is being run over by a car. Her legs are hurt
3.	The woman's knees are crushed by a motor vehicle. She can hardly move her legs	This man is a reckless driver, he ran over the woman's legs with his motor car. The driver seems to be scared and shocked by his recklessness and he wants to run away. In the mean time this poor woman is also shocked and in pain, her legs and knees are broken, she is sad over what has happened to her

Theme continues

4.	A woman run over by a car travelling at a high speed, and the driver does not stop to assist this woman. She is having an intense pain and I wonder if she will survive the accident	
5.	The car is running over the woman. She is in pain and she is crying	It's a woman who is in great pain because she has been run over by a car. She is scared and sad
6.	This woman was trying to cross the street when suddenly a car comes from nowhere, this car bumped the woman. She fell to the ground and this car then ran over her legs. The driver seems to be shocked too, he is hiding his face behind the steering wheel of the car. This woman is screaming from pain	A drunken driver most probably without a driver's licence has knocked down this lady who could be thirty five years of age. Her hands are sprawled onto the ground, she is trying hard to support herself but she is unsuccessful in her attempts due to the unbearable pain from her legs
7.	A man knocked down by a car. His legs are injured, he is in pain, he is unable to move his legs. Maybe he is paralysed hence he is unable to execute any movement. His face looks bewildered, he is also worried about what is going to happen to him. The driver of the car will stop to assist him and will ask other people to call the ambulance to take the man to hospital	A middle aged man lying on the ground apparently being knocked down by the car. His legs are actually under the wheels of a stationary car. The man's face is pulled hard, he is trying to endure the pain without screaming or crying
8.	A male who is lying on the ground. He has been run over by a car, over his knees and legs. He is groaning from pain. The driver of the car is also shocked, he did not believe his eyes that he has actually killed this man. The driver hiding his face behind a steering wheel apparently paralysed by fear.	A man being run over by a car. His legs are broken, he is still alive and is groaning from the pain. His face is contorted indicating that he is in severe pain

Theme continues

9.	<p>A boy run over by a car over his knees and legs. The legs appear crushed and his hands are sprawled on the ground. This car seems to be travelling at a high speed, the driver did not see the child from afar, when he saw the child he tried to stop but it was rather too late for him to stop. This boy is dying, he is in pain and is also afraid, he is looking hoping to spot someone who knows his family. The driver is behind the steering wheel and his head is lying on the steering wheel. He is thinking that he has put himself in a mess and wants to run away from the accident scene. However, he is not lucky because someone has already written down the registration number of the drivers car. He has to come out of his car to call the police and the ambulance</p>	<p>His thoughts are with the young boy, he is thinking that this boy is dead as his body is motionless. He also wants to run away from the accident scene but is unable to do so because there are people who have witnessed the accident and will be able to identify him if he is to run away</p>
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Seventy percent of the pain group and 65% of the no-pain group referred to pain in their responses to this question. Thirty percent of both groups provided responses that have additional features which were projected by the subjects onto the cards. For example:

	Pain group	No-pain group
1.	<p>A woman run over by a car travelling at a high speed. The driver is not stopping the car. The driver is running away.</p>	<p>A woman run over by a car travelling fast</p>
2.	<p>A man run over by a car, travelling at high speed.</p>	<p>A man run over by a car travelling at high speed, the driver does not stop</p>

Theme continues

3.	A boy/girl who happens to have been run over by a car on his way from the shops. This reckless driver has been travelling very fast in an area which is busy with pedestrians alighting from the bus. The driver could not immediately stop his car, he lost control of the car which hit the boy.	The little boy seems to be crying from pain. His legs are under the wheels of this car implying that he has been run over by this car on his way to school. The driver was in a hurry rushing to work and did not stop for the pedestrians to pass. Through his negligence and irresponsible behaviour he knocked down this young child
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Question 3: "Tell me (how this person will turn out), what would the outcome be?" This question involves more projection than any other question of the PAT, and indicates the final state of the events perceived in the three stimulus cards. Responses to the card; depicting a child, are dealt with first.

Theme: Pain, temporary suffering which can be relieved by caregivers

	Pain group	No-pain group
1.	When this boy is in pain he does not close his eyes; when asleep his face is pale - his mother will attend to him, he is crying and is agonising over his pain.	Children are basically strong, this one will survive the accident if given love and attention by his parents.

Sixty seven percent of the pain group saw the child's recovery from the accident as dependent on the welfare of the caregivers. The mother and the family were pointed out to be the most important persons responsible for the well being of the child. The same theme was put forward by 75% of the no-pain group.

The second important theme that emerged with regard to the outcome for the child, was impending death which could be averted by the family. This is highlighted by the following responses:

Theme: Impending death which can be averted by the child's family if the child is given love and attention

	Pain group	No-pain group
1.	This young child could be a boy, is weak, his face is ashy and he may die if adequate attention is not given to him. On the whole he will require help from his family.	The child is in severe pain, he could be a boy or girl whose life is being threatened by the severity of the pain and the immobility of his lower limbs. He could die at any moment if help is not given to him immediately. His family together with the doctors and other health personnel would have to work around the clock to save his life.

The third theme that emerged dealt with the death of the child.

Theme: Death of child

	Pain group	No-pain group
1.	This young child was taken to the theatre for an operation but he died, the pain was unbearable	The driver of the car lifted the boy into his car and took him to hospital. By the time he entered the emergency unit of the hospital he had died from shock

The fourth theme that emerged referred to the resiliency of the young child.

Theme: Resiliency of the young child

	Pain group	No-pain group
1.	Children are basically strong emotionally, they can withstand the most trying circumstances if one gets a caring person to look after the child. This one (child) will survive his ordeal	Children are very resourceful in the sense that they are able to adapt to the most intolerable situations or circumstances provided that an adult in the child's environment or home comprehends the feelings of the child, responds appropriately and meets the needs that are apparent. If this is done this young child will be able to overcome most hurdles in his life arising from his physical disabilities (referring to the crushed legs)

Theme continues

2.	This young child although crushed on his legs by the motor vehicle will survive, he will learn survival skills, he will learn that if he cannot do things for himself through the use of his legs, he can get things done through his brains by making his desires known to others especially his family, his ideas may be implemented into action	Though he may be crippled by the accident, he may be able to compensate for his physical disability by becoming a mechanical whiz later on in life. Like most African children he will learn from those around him how to take bicycles apart put them back together or how to use wire to his advantage to built cars and bicycles

This positive outcome was expressed by 20% of the pain group and 15% of the no-pain group. A more negative view was given by 10% of the no-pain group and 2% of the pain group:

Theme : **The child as a survivor who struggles to adapt to his hostile environment**

	Pain group	No-pain group
1.	This boy will struggle throughout his childhood because his legs will be hurting most of the time. He will sometimes feel lonely and left out in most activities done by other children more or less of his age group since he would not be able to participate in most games or childhood activities	This young child may recover from his ordeal but would encounter setbacks with playing football games. He may eventually quit sports as he will never be selected as one of the best football players for his country. Football teams are not interested in cripples.

The following themes were expressed in response to the two cards depicting the adult male and female victim.

Theme : Drunkenness and unruly behaviour of male victim

ADULT MALE		
	Pain group	No-pain group
1.	This man was drunk when he was knocked down by this car. He seems not to be in pain, however he is going to feel the pain as soon as he recovers from the drunken stupor. He will agonise about the pain and most probably his wife will feel pity for him, take him to hospital to be X-rayed, also to assess the extent of his injuries. Thereafter, he may have to undergo an operation for the amputation of his legs.	The man is unruly at the moment because he is in pain and could also be drunk, especially if the accident took place during a weekend. He may end up with the amputation of both legs.

Other subjects related the drunkenness to the driver of the car. The above theme was expressed by 41% of the pain group and 33% of the no-pain group.

Theme: Loneliness and inability to pursue one's interests and hobbies. This theme was expressed by 17% of the pain subjects and 12% of the no-pain subjects.

The loneliness was stressed for the adult male victim, mostly by male respondents. For example, most of these subjects saw the male as unable to pursue his usual hobbies and former friends are not visiting him regularly like before the accident. He is thus shut out from the main stream activities of his male friends.

Theme: Stoicism due to previous experiences with pain.

Both the pain and no-pain subjects saw both the adult male and female as stoical. Fifty one percent of the pain subjects and 43% of the no-pain group saw the adult female as being able to deal with pain, due to women's previous experiences with labour pain, while the man was seen as showing stoical behaviour due to his socialisation.

The theme of death or possible death was expressed by 52% of the pain group and 45% of the no-pain subjects:

Theme: Death (for both the adult female and adult male)

	Pain group	No-pain group
1.	The man looks dead, he is lying motionless, and has lost a lot of blood	The man will be taken to hospital for an operation, however, he is going to die due to the loss of blood.
2.	This woman's lower limbs are becoming cold, her breathing has stopped. She is dead due to the pain and shock	The woman is fighting hard to keep alive but her wounds and fractures are large and complicated. She is definitely dying from the loss of blood

Theme: Coping with pain through the use of medication and prayer. Only 69% of the pain group mentioned coping as a positive action in addressing the pain. For both the adult male and female, medication was the most common coping strategy proposed for pain control. Other forms of coping were prayer and helplessness. Thirty one percent of the no pain group alluded to coping as a positive strategy, with prayer a common strategy proposed for coping. Other forms of coping were negative, 30% of the no-pain group mentioning helplessness as a form of coping.

Theme: Inability to pursue one's role within the family.

Male subjects from both the pain and no-pain group were more inclined to give responses with a theme of loss. Thirteen percent of the pain group expressed anxiety related to desertion by one's spouse or by friends.

However, the majority of subjects (61% of the pain group and 52% of the no-pain group) referred to loss in a broader sense, namely loss of control over the family, loss of a job, loss of status, and loss of income.

Theme: Emotional expression of distress as result of pain and trauma. This was a common response to both the child in the projective card and the adult male and female. Sadness as an emotion was expressed by 25% of the no-pain group and 30% of the pain subjects. Another emotion expressed by 60% of the pain group and 45% of the no-pain subjects was fear with regard to the young child. About 11% of the pain group and 17% of the no-pain group mentioned crying as being common in children. The adult male was seen as irritable, angry and sad by 31% of the pain group and 20% of the no-pain group. The adult female was seen as scared by 20% of the pain subjects and 10% of the no-pain subjects.

Theme: Problems faced in everyday life by both adult males and females. The following problems were foreseen for the adult male and female: Added responsibilities and difficulties in raising children alone, difficulties in finding employment, loss of status and income, lack of transportation, loss of independence, and immobilisation caused by pain. The following quotations illustrate these problems:

"It's hard raising children without a spouse. You have to do everything, cooking, cleaning, doing everything alone for the children."

"She/he worries about money, he has no income, he is worried about how he is going to support his family, pay rent for the house. He thus cannot sleep or rest as he is worrying all the time."

"There are no available jobs for sick or crippled people, employers are only concerned about productivity or getting the job done within a particular time frame. They (employers) are not concerned about crippled people."

"He is dependent on other people like friends if they are still around to transport him. He is unable to use the public transport as it lacks facilities for people who are in severe pain and those without legs. For those in pain public transport tends to become very uncomfortable and in most instances it exacerbates the pain."

"Being crippled due to pain arising from the motor vehicle accident you suddenly realise that you cannot go anywhere without some assistance. You are stuck in the house, at times you can initiate things but other times you cannot initiate things and see them happen the way you want them to be, in a way you are seen not to be worth anything."

"Both this man and woman's legs won't function like before, they are adults and their bodies do not recover like those of children. They both will need some aid like a wheel chair or crutches which they are likely to use for the rest of their lives."

"He is now a cripple and will need assistance from the family and friends."

Some of the problems mentioned pertained particularly to the adult male:

Loss of control over the family; as this man is crippled, his wife will have to do most of the tasks

which were done by this man. He is the head of the family but will experience difficulties in asserting himself because his family and children will now listen to his wife who will now be considered the bread winner. According to our custom, the man is the head of the household. He is supposed to be the provider. The woman is supposed to take care of the children and the husband as far as keeping him clean, cooking, and bearing children.

Fear of abandonment: When you are male, your offspring do not pay much attention to you later on in life. They tend to pay attention to the female who in most instances is their mother. This means that children may desert him, also his wife may reject him and ultimately leave him for another man who is more capable than the husband.

Loneliness: Loneliness was expressed by most subjects with regard to the adult male. Male activities are mostly outside the home and he engages in social interactions with male friends.

"They normally visit shebeens (beer gardens) together and also follow their hobbies as males like watching a football match at a stadium. Since he is now unable to move around and pursue his interests outside the home he is likely to be lonely in the future."

Other problems pertain specifically to the adult female:

Altered body image: This woman's legs prior to the accident were well proportioned. Now her legs differ in size and length. This may affect her spiritually as she won't be able to put on shoes which are in vogue and will have to hide marks from the operation by either wearing long dresses or keeping indoors most of the time; she is

likely to be singled out by other women and men due to her defect in appearance.

Question 4: "Who is in more pain and why?"

Forty two percent of the pain subjects and 40% of the no pain group saw the young child to be in more pain than the adult male and female. The reason given is that the young child is frightened by pain and wonders what this is all about. Because of his fear of pain, his pain is considered to be worse than that of the two adults. Other factors contributing to the high sensitivity to pain were thought to be soft tissues which seem to transmit pain faster than hard tissues.

Fourteen percent of the pain subjects and 33% of the no pain subjects saw the pain of the child to be the same as that of the adults. This perception is illustrated by the following responses: "Their bodies (referring to child,

adult male and adult female) are made the same way", and "pain knows no age and sex, it hits you hard."

Twenty eight percent of the pain subjects and 20% of the no pain subjects responded that the male is in more pain than the female and child. Concern about his family and his lack of income are seen to contribute to his pain. Other factors mentioned are that the male culture does not allow the man to express his pain as openly as the women as he has been trained during childhood in how to deal with pain. He is prepared to endure pain and psychologically calms himself, as he has to be a warrior/soldier in future.

Seventeen percent of the pain subjects and 7% of the no pain subjects saw the adult female to be in greater pain than the adult male. The rationale behind this observation was that the female has less strength

than the male. Hence her pain is perceived to be more severe. However, compared to the child, she is seen as experiencing less pain, as her body is perceived to be far stronger than that of the child.

1.2.1 Components of Pain

The subjects' responses to the PAT were further analysed by noting the components or facets of pain they contain. The following components could be distinguished:

- (a) Objective/physical aspects of pain: These are expressed in the stories through physical trauma or tissue damage. For example: "A man whose knees are crushed by a motor vehicle running over him", or "a man in pain run over by a car; his knees appear to be crushed."
- (b) Emotional component: Pain as an emotional experience. This is illustrated by the following response: "She is worried about her pain. She agonises over the pain and wonders when will it end. She is very scared. She is so frightened by the pain and wonders what this is all about." This component is also conveyed by references to non-language sounds: "He is moaning and groaning about his pain;" "he is crying and needs someone to reassure him that the pain will go."
- (c) Behavioural or motor component: The motor performance of the three individuals depicted on the three stimulus cards represent the behavioural aspects of pain, for example, grimacing or distortion of the face, and

impaired mobility. This is illustrated by the following responses:

"She is in great pain, her face is grim, she can hardly move her legs"; "his face is very distorted and this could be due to the pain that he is experiencing."

- (d) The impact of pain on the enterprise of living: Pain is seen as negatively affecting certain activities, interpersonal relations, and the general quality of life. This is illustrated by the following: "This woman could in the future have severe difficulties in running her errands and in taking care of her family. Her children will in turn suffer because she would be unable to provide them with money, unable to help in the house. Her children may in future be physically deprived of material things because their mother is unable to do things or attend to their welfare as before the accident."
- (e) Pain can be alleviated: The respondents indicated that pain can be alleviated by medication or other interventions for pain relief. For example: "She may become better if she is attended to by reviewing x-rays to assess the extent of the injuries sustained, also some medication will be prescribed to relieve her from the pain. A plaster around her legs may be prescribed together with a traction."
- (f) Pain elicits psychological and social resources: These resources modify the situation, and control the meaning of the situation after it has occurred. For example: "This woman is in such pain that she may think

that it is better for her to die, but women are usually strong emotionally, irrespective of the fact that the accident and pain may change the level of interest in activities, sexual relationships and self-esteem," and:

"This child may be crippled by the accident, he may walk with a limp or have one of his legs being shorter than the other one. However, with the help of adults in his environment he will eventually adapt well to his limitations."

1.2.2 Discussion

The apperception study dealt with what pain feels like, and what it signifies to the individual. All the subjects perceived pain arising from physical injury as characterised by feeling states. The commonality of the responses to the PAT overrides individual differences in education, occupation and gender.

The question "tell me what is happening" provided interesting responses, which can be summed up, thus: being run over by a motor vehicle brings about physical pain and emotional trauma. The trauma is partly attributed to the reckless driving and irresponsible behaviour of the driver. In other words, the social environment is perceived as threatening. This is in keeping with the social component of pain, and the views of Karoly (1985) that pain perception is part of an open system of interacting elements mediated by social and cultural influences. This is also exemplified by the perception of the child as "crying" and "afraid" by both the pain and no-pain subjects. An interesting

observation is that the adult female is also perceived to be "crying" and to be "scared" by both pain and no-pain subjects. It could mean that women and children are expected to openly express distress. Crying elicits sympathetic responses from others and serves to draw others close to the person in pain. Furthermore, adult females and children tend to become "shocked" from the pain experience whereas adult males are perceived to be able to endure it. This is consistent with observations by Zborowski (1969) with reference to Italians. He informs us that when in pain, they drew attention to their suffering by groaning and moaning. The current study therefore indicates that both adults and children tend to be emotional in response to pain. There is indeed a language of distress namely:

- (a) the non-verbal language which includes facial expressions, impaired physical mobility, and non-language sounds like crying;
- (b) affective words indicating fear, for example, "scared", "frightened", and "perplexed." The

adult male is seen as "irritable" and "angry."
"Sadness" is a common emotion for both the adults and the child.

Further analysis of the responses reveals that anxiety is a major factor in pain perception. The anxiety centres on the effects of pain upon the immediate situation, such as income, family responsibilities and possible death. By contrast, subjects also expressed anxieties about implications for the future. "Lack of financial income" accompanied by material deprivation, "abandonment by the family", especially projected onto the male subject, and "loneliness" were mentioned for all three stimuli.

Some of these anxieties which are future oriented are consistent with Zborowski's (1952, 1969) findings on Jewish patients, who were concerned with the meaning and significance of the pain and its relation to their health, welfare, and the general welfare of their families. Stoicism was also mentioned by our subjects as a way of responding to pain. This finding is consistent with Zborowski's (1969) view of Anglo Americans, according to which pain is viewed as something that one must face with the attitude of "grin and bear it" or detachment. An important consideration in the expression of pain by our subjects is that there is no clear pattern. Instead, we note three types of pain response, namely:

- (a) A need to verbalise one's response to a painful experience, as is the case with the Italians who, according to Zborowski, (1952) are oriented towards the present.
- (b) The outward expression of the meaning of the pain experience, which is usually pessimistic. The orientation and anxieties concentrate on the future, as is the case with Jewish Americans.
- (c) Stoic behaviour by males, as is the case with Anglo Americans.

The proposed interventions to alleviate pain, function as mediators in the adjustment to pain and trauma to attenuate its noxious effects. The actions proposed were both passive and active. Prayer was the most common active strategy used. Prayer is considered

as an active strategy in that it distracts the individual's attention from pain. Another coping strategy involved the use of medication. The use of medication to control pain is considered to be a passive coping strategy in the sense that the individual relinquishes the control of pain to others. The same applies to reliance on doctors and X-rays. Helplessness was also mentioned by the subjects, implying that the individuals were ineffectively coping with their current situation, as if their actions would not affect the outcome.

The responses to the last question, "who is in more pain and why?" were interesting and varied. No clear pattern of responses with regard to the gender of the victim emerged. Therefore this study does not support previous studies which found an association between pain and gender, with men being more sensitive to pain.

1.3 The Language of Pain in Responses to the Pain Eliciting Incidents Questionnaire

The primary purpose of applying the PEIQ was to determine the existence and contents of a pain lexicon among the Setswana-speaking population and to find out if the Setswana pain descriptors can be classified according to the Melzack and Torgerson (1971) classification system.

The findings from individual questionnaires are presented in Table 7.2, indicating both the findings of the chief researcher and her assistant. The results are presented in two columns to give the reader an idea of the process involved and the agreement and disagreement for each item of the PEIQ. The frequency with which

each adjective was used, is indicated in Table 7.3. The last two columns of this table provide the percentages of subjects who used each descriptor. Finally, the results are arranged according to the theoretical pain dimensions, postulated by Melzack and Torgerson (1971), namely the sensory-discriminatory, affective-motivational, and cognitive-evaluative (Table 7.4). The Tswana pain adjectives used by the subjects of this study are given in brackets.

Table 7.2 : The pain descriptors identified in the protocols of 66 Setswana-speaking subjects, arranged according to the item numbers of the PEIQ. (The descriptors should be read together with the PEIQ).

Question	Chief Researcher	Assistant Researcher
Q1	Splitting headache Aching headache Intense pain Pulsing pain (throbbing) Buzzing pain pulsing, pulverising	Splitting headache Aching headache Intense aching headache Intense pain Buzzing pain pulsing, pulverising
Q2	Throbbing pain Radiating pain (to the ear) or referred pain Radiating pain (to the heart) Constant annoying deep pain Intense aching pain Grinding pain	Throbbing pain Radiating pain (to the ear) Radiating pain (to the heart) Constant annoying/irritating pain Intense aching pain
Q3	Burning pain Throbbing pain Pulsing pain Intense aching pain Suffocating pain/choking pain Burning pain then numbness (Burning) Hot and piercing	Burning pain Throbbing pain Intense aching pain Suffocating pain/choking pain (Hot) Burning pain then numb pain
Q4	Distressing pain Excruciating pain Depressing pain (lowering of spirits) (Burning) Hot then piercing	Miserable pain Excruciating pain Hot then piercing pain

Table 7.2 continues

Q5	Exhausting pain Tingling pain Stinging, then burning pain Heavy pain/dull pain Stinging and itchy pain Stinging pain then numbness	Tiresome/exhausting pain Stinging then burning pain Heavy pain Stinging then itchy pain Stinging then numbness
Q6	Numb (pain) Snapping pain Deep pain Burning, hot scalding pain	Numb (pain) Snapping pain Deep pain Burning pain
Q7	Throbbing - radiating pain (to ear) Numbness then throbbing pain Numbness then pricking pain Terrifying pain Frightening pain	Radiating pain (to ear) Numbness then throbbing pain Numbness then pricking pain Terrifying pain
Q8	Suffocating pain Tearing and overwhelming Paralysing pain Nauseating Crippling pain	Choking pain Tearing/pull to pieces Crippling pain Nauseating/disgusting pain
Q9	Paralysing, crippling pain Numbness then burning pain Pulverising and paralysing pain Terrifying pain	Numbness then burning pain Stupefying/boring pain Grinding pain/Pulverising and paralysing pain Terrifying pain
Q10	Maddening pain (excruciating pain) Pricky and intoxicating pain Radiating pain (to the heart) Devastating pain Burning and stabbing Hot/scalding	Maddening pain Pricky and intoxicating Radiating pain Burning then stabbing pain Pricking pain
Q11	Pain hurts Pain is what aches Pain is cessation of blood flow Pain is what makes one sad/ uncomfortable/uneasy/distressed	Pain is something that hurts Pain is what aches Pain is stoppage of blood flow Pain is uncomfortable

Table 7.3 : Responses to the Pain Eliciting Incidents**Questionnaire and Associated Frequencies**

Question No	Description of pain	Frequency		Percentage	
		Pain group (N=36)	No pain group (N=30)	Pain group	No pain group
1	Splitting headache	19	17	53	57
	Intense aching pain	9	12	25	40
	Buzzing pain	6	1	17	33
	Pulsing or pulverising pain	0	2	0	7
2	Constant annoying deep pain	3	1	8	33
	Throbbing pain	7	5	19	17
	Intense aching pain	10	7	28	23
	Radiating (to ear)	5	16	14	53
	Radiating (to heart)	2	5	5	17
	Grinding pain	2	0	5	0
	Annoying/irritating	7	4	19	13
3	Burning pain	6	8	17	27
	Intense aching pain	5	5	14	17
	Throbbing pain	10	4	28	13
	Pulsing pain	3	3	8	10
	Suffocating pain/choking pain	6	5	17	17
	Burning, then numb	4	2	11	7
	Hot and piercing	2	3	5	10

Table 7.3 continues

4	Distressing pain	11	12	30	40
	Excruciating pain	9	6	25	20
	Miserable/depressing pain (lowering of spirits)	10	9	28	30
	Hot then piercing pain	6	3	17	10
5	Tiresome/exhausting pain	9	6	25	20
	Stinging, burning pain	12	9	33	30
	Heavy pain	6	5	17	17
	Stinging, then numb	4	4	11	13
	Stinging and itchy	3	6	8	20
	Tingling pain	2	0	5	0
6	Numb	6	8	17	27
	Snapping	11	14	30	47
	Burning, hot, scalding	7	3	19	10
	Deep pain	12	5	33	17
7	Throbbing and Radiating pain (to ear)	10	5	28	17
	Numbness then throbbing pain	8	10	22	33
	Numb, then prickly	3	9	8	30
	Terrifying/fearful/frightful pain	11	3	30	10
8	Suffocating pain	8	3	22	10
	Tearing pain	10	7	28	23
	Tearing and overwhelming	2	2	5	7
	Paralysing pain	5	8	14	27
	Nauseating pain	9	8	25	27

Table 7.3 continues

9	Numb and then burning	7	10	19	33
	Pulverising and paralysing pain	12	7	33	23
	Terrifying pain/ fearful, frightful and devastating pain	12	8	33	27
	Crushing and paralysing pain	3	2	8	7
	Crippling pain	0	3	0	10
	Dull, stupefying pain	2	2	5	7
10	Maddening pain (excruciating)	10	8	28	27
	Pricking pain	6	4	17	13
	Stabbing pain	9	6	25	20
	Pricky and intoxicating pain	4	4	11	13
	Radiating pain (to the heart)	6	5	17	17
	Burning then stabbing pain	5	7	14	23
11	Pain is what hurts	16	13	44	43
	Pain is cessation of blood flow	7	3	19	10
	Pain is what aches	6	10	17	33
	Pain is what makes one sad/uncomfortable/ uneasy/distressing	7	4	19	13

Table 7.4: The Three Dimensions of Pain and their Classes, from Melzack and Torgerson (1971), with the Tswana pain adjectives in brackets)

Dimensions	Classes	
SENSORY DISCRIMINATORY	<u>Dullness</u> heavy (boima) sore (botlhoko) hurting (utlwisa botlhoko) aching (opa, opela) numb (go swa bogatsu) paralysing (go swa setho)	<u>Temporal</u> Pulsing (thuba) throbbing (opa) splitting (phatlhoga)
	<u>Thermal</u> burning (fisa) scalding (fisa) flashing (fifala/fifatsa)	<u>Brightness</u> itchy (hlohloma) stinging (tlhaba tlhaba)
	<u>Punctate Pressure</u> stabbing (ya tlhaba) piercing (tlhaba tlhaba) drilling (epa)	<u>Traction</u> pulling (gogega) snapping (kgacoga)
	<u>Spatial Pressure</u> radiating to the heart (siyanela ke pelong) constrictive pressure, crushing, pulverising (ya sila)	<u>Incisive Pressure</u> sharp (motsu) cutting (sega)
AFFECTIVE- MOTIVATIONAL	<u>Autonomic</u> nauseating (e ferola dibete) purging (tlhatsisang) Suffocating (hupetsa moyo)	<u>Fear</u> frightening (ya tshosa) fearful terrifying
COGNITIVE- EVALUATIVE	<u>Punishment</u> vicious (bogale, setlhogo) punishing (bogisa)	<u>Anchor Words</u> unbearable (botlhoko, thata, sarakaya) excruciating (emisa madi) intoxicating pain (tagisa) distressing (ntshofatsa pelo) madding (kgafisa) crippling (qolofatsa)

Study 1 sought to elicit the language of pain in Setswana, that is, the way subjects verbally describe pain in response to the PEIQ. The results reveal that there is reasonable consistency and agreement among the pain and no-pain subjects with regard to their responses to all the questions of the PEIQ. Generally, pain

arising from injury to the head (question 1) is described as "splitting headache" (hlogo ya phatlhoga) "intense aching pain" (hlogo e botlhoko thata or hlogo e opang thata), or "buzzing pain" (peine e dumang-dumang or hlogo ya duma).

The adjective "pulsing" or "pulverising" pain (runya runya) was used by only two subjects from the no-pain group, and none from the pain group. Such minor differences in the description of pain may have arisen because the no-pain subjects were interviewed at the university, which is a non-threatening environment quite different from the hospital. Another reason is related to the lack of pain in the control subjects during the study. They could have encountered some difficulties in conjuring up the pain experience. Familiarity with medical terms has also been claimed by investigators (Leavitt & Garron, 1979a; Wolff 1977; Meinhart & McCaffery 1983; Moore & Dworkin, 1988) to influence the description of pain. The control subjects included medical students who knew medical phrases and this improved their verbal abilities as far as the language of pain is concerned.

The descriptors used for question 2 of the PEIQ, which dealt with post-extraction pain, were "throbbing pain" (ya opa), "intense aching pain" (botlhoko thata), "annoying irritating pain" (peine e tshwenyang), "constant annoying deep pain" (peine e tswenyang ka nako yohle), "radiating pain to the ear and the heart" (Setswana), and "pulverising" pain (peine e silang), the latter implying the grinding experience accompanying the pain. We know that medical diagnosis is influenced by the patient's report of his pain and the words used can facilitate a more accurate diagnosis. For example, the description of dental pain as encompassing referred pain

"to the ear" makes some sense, in that dental pain spreads by central excitation so that before long the referred pains could constitute the main complaint.

The subjects' description of post-extraction dental pain as intense aching pain correlates well with observations by Ljunggren (1983) and Moore and Dworkin (1988). These investigators found that Anglo Americans and Scandinavians describe dental pain arising from tooth drilling to be sharp and intense. Also this study's finding correlates well with the findings by Fattore and Strauss (1988) on ethnicity and pain in American subjects, who saw dental pain as oppressive, thereby indicating the unpleasantness of the pain experience. Our subjects described dental pain as "annoying/irritating" and also as "annoying deep pain."

Pain arising from cut off hands (question 3) is described by most subjects as "throbbing and radiating to the ear" (peine e botlhoko bo tswelolang ka ditsebe), "terrifying" (peine e tshosang) and "numb" then "throbbing" (o swa bokidi e be go opa ka morago). A minority of subjects described it as "numb then prickly" (o swa bokidi go be go tlhabe tlhabe). The descriptors "numb" apparently characterise the pressure elicited by the pain, as well as the intense restriction of movement of the hand. The "throbbing" character of the pain indicates the temporal as well as the sensory nature of the pain. The descriptor "terrifying" indicates that this pain evokes fear. This corresponds with the observations various investigators (Agnew & Merskey 1976; Veilleux & Melzack 1976) who also found that words selected by patients to describe pain convey information on the emotional-evaluative characteristics of pain.

The descriptions of pain arising from injury to the upper limbs (question 3) indicate that the pain is

indeed individual and has much to do with experience. Most subjects indicated that they had not lost both upper limbs and thus had difficulty in finding a pain descriptor that could capture this experience.

Trauma on the big toe (question 4) is described as "distressing" (ntshofatsang pelo), "excruciating" (emisang madi or bogisang), or "depressing" (tlhokofatsang) by most subjects, while a minority of subjects described the experience as "hot then piercing pain" (peine e fisang e be e tlhabe). These findings are consistent with those of Moore and Dworkin (1988), according to which pain of the big toe is described by Anglo American subjects as "very hot and very painful" to the extent that it "hurts even to look at it."

Pain arising from a bee sting (question 5) is described as "stinging and burning" (ya tlhaba-tlhaba e be e fisa), "tiresome" or "exhausting" (peine e lapisang), or "heavy pain" (peine e boima) by the majority of subjects. A minority described this pain experience as "stinging then numb" (ya tlhaba-tlhafa o be o swa bokidi), "stinging and itchy" (ya tlhaba-tlhaba ka morago go lome), or "tingling pain" (peine e tsikinyang). The tingling of pain indicates the vibrating nature of this pain. The numbness describes the reduced sensitivity to pain. Adams (1980), Devine and Merskey (1965) and Ljunggren (1983), also report that reduced sensitivity to pain is most frequently reported following injury to the muscles.

Back pain arising from physical injury (question 6) is described by most subjects as "snapping pain" (kgaoga) and "deep pain" (peine e tseneletseng ko gare). One sixth of the subjects describe this pain as "burning" (peine e fisang), others as "numb" (peine e swisang bokidi). These descriptors indicate both the sensory

quality of the pain experience and the severity of the pain.

Pain arising from a broken arm (question 7) is described by most subjects as "throbbing" and "radiating" (peine opang or e opang-opang or peine e bothoko bo tswelalang ka ditsebe), "terrifying" (peine e tshosang), "numb" then "throbbing" (o swa bogatsu e be e runya-runya). The overall impression given by most subjects in describing this experience indicated the vibrating nature of the pain and the emotional aspect of it as terrifying. This is in keeping with the observations made by a group of Belgian researchers cited by (Covino & Warfield (1987), who observed that patients with persistent limb pain, regularly using the McGill pain questionnaire, chose words such as "quivering."

Abdominal pain arising from trauma of the stomach (question 8) is described by most subjects as "suffocating" (peine a hupetsang moyo), referring to the breathlessness or difficulties with breathing accompanying the experience. "Tearing pain" (peine e kgagolang) is also used to describe the violent nature of the pain and "nauseating pain" (peine e ferolang dibete) indicates that it could be accompanied by nausea without vomiting. A third of the subjects saw the pain as "paralysing" (o swa ditho tsa mmele) and some as "tearing and overwhelming" (mala a kgaoga, e go fetsa matla le mogopolo). The descriptor "paralysing" describes the intensity of the pain, which floods the central processing system. The adjective "overwhelming" indicates the intolerable proportions of the pain.

Pain arising from the lower limbs being run over by a bus (question 9), is described as "pulverising and paralysing" (e sila ditho tsa mmele di swe), "terrifying and devastating" (ya tshosa) or "numb" then "burning" (o

swa bokidi e fise) by the majority of subjects. A minority of subjects described the pain as "paralysing" (o swa ditho tsa mmele) or "crippling" (peine e golofatsang). The descriptor "pulverising" indicates the crushing or grinding nature of the pain. Harvey, Bordley and Barondess (1979) also described pain of angina as crushing. An interesting point is that the same descriptor is used for describing headache arising from trauma of the head. The descriptors "paralysing" and "crippling" refer also to powerlessness, incapacitation, and immobilisation due to the loss of motor function. An association could be made at this stage between the crippling nature of this pain and its paralysing effect, with the result that the experience is indeed "terrifying" as described by many subjects.

Pain inflicted by sharp thorns (question 10) is described as "maddening" (kgafisang), "stabbing" (ya tlhaba), "radiating" to the heart (e siyanelang ko pelong), or "pricking" (ya tlhaba-tlhaba) by the majority of subjects. A third of the subjects described this pain experience as either "pricking" (tlhaba-tlhaba) or "pricky and intoxicating" (ya tlhaba-tlhaba e be e tagisa). The heart in this context is seen as the seat of feelings.

The variety of pain descriptors used in response to the PEIQ, indicates that the subjects were able to monitor, select, and integrate the hypothetical experiences relating to pain. They could think abstractly, using their imagination, memory, and expectancies, thus defying the prevailing notion put forward by Price Williams (1961) that African people tend to think in a concrete fashion.

During the analysis of the data, definite patterns emerged regarding the contents of the pain language. The

visibility of these patterns was due to the theoretical framework used. Contemporary theorists stress that pain involves sensory information, emotional arousal, cognition, and a motivational component. Thus pain refers to a category of experiences. The classification of pain descriptors into three dimensions (Table 7.4) revealed that the Setswana Pain Lexicon is in fact fairly similar to that in other cultures, as the pain descriptors could be classified according to the three dimensions and their classes developed by Melzack and Torgerson (1971).

Difficulties arose in comparing some of the Setswana pain descriptors to English. For example, subjects would use two descriptors like "numbness then burning" to describe a pain experience. The usual description given being that the intensity of pain is so high or severe that one just becomes numb from being bombarded by painful stimuli. Thereafter the subject experiences some burning sensation. The same rationale holds for "numbness then throbbing pain", "stinging and itchy", "hot and piercing", and "pricky and intoxicating." The coining of two descriptors to describe a pain experience could be attributed to ethnic factors.

Also some of the Setswana pain descriptors like "maddening pain" (peine e gafisang), "dull pain" (botlhoko bo tlaetsang), and "radiating or referred pain" (peine e siyanelang...) are not easily translated into English. Pain that radiates to the heart means that it affects the seat of feelings, it is depressing and has a symbolic association with affect and meaning. Other investigators (Flannery, McGavern & Sos, 1981; Moore & Dworkin, 1988; Zatzick & Dinsdale, 1990) have already warned us about the difficulties in the linguistic analysis of the semantics of pain across cultures. They

point out that reliance upon linguistic analysis alone may cloud the cultural meaning of pain. Bonica (1979) acknowledges the complex mutual influence of psychological, physiological and biochemical mechanisms in analysing pain and because of these factors, he argues that pain description is not always easily divided into single parts, for instance sensory, affective and evaluative as put forward by Melzack and Torgerson (1971).

Finally, Study 1 dealt also with the definition of pain (question 11). The majority of subjects define pain as something that hurts. One sixth of the subjects defined it as a "lack of blood flow", or "cessation of blood flow", one fifth of them defined it as "aches" (pain is what is aching), and another fifth described pain as that which makes one feel uncomfortable/uneasy, or pain is what makes one sad or depresses one.

We conclude that Setswana-speaking subjects have a broad notion of pain and their pain language includes a broad category of experiences. The results revealed that the language of pain can be classified according to a contemporary framework of pain with the three dimensions sensory-discriminatory, affective-motivational, and cognitive-evaluative, as postulated by Melzack and Torgerson (1971). As there were no marked differences between the pain and no pain subjects in response to the PEIQ, it would seem that the presence of pain at the time of the study did not adversely affect the descriptors given to the various imagined pain experiences. At this stage the formulation of specific conclusions may be useful.

1. Setswana-speaking persons have a broad vocabulary for pain, arising from various pain eliciting experiences.
2. Hospitalised Setswana-speaking subjects suffering from pain and pain-free Setswana-speaking subjects use the same descriptors in response to the PEIQ.
3. The Setswana pain vocabulary is characterised by a distinctive pattern of verbal descriptors that could be classified as sensory-discriminatory, affective-motivational, and cognitive-evaluative with each pattern reflecting certain qualities associated with the pain experience.
4. The Setswana pain vocabulary sometimes combines two pain descriptors to convey the meaning attached to a pain experience.

2. Study 2: The Effect of Mood on Post-operative Pain

The main purpose of Study 2 was:

- (a) To investigate the reliability and validity of the POMS, VAS, and WBPQ.
- (b) To investigate the relationship between pre-operative mood states and post-operative pain experience.

The medical history of the subjects (sample of patients) used in Study 2 is given below, followed by an analysis of the reliability and validity of the POMS, VAS, and WBPQ. Thereafter, the relationship between mood states and post-operative pain is reported.

2.1 Medical History of the Subjects

The medical history of the subjects, with reference to past operations and pain experiences, is summarised in Table 7.5.

Table 7.5: Medical History of the 58 Laparotomy Patients

Symptom or incident	Yes %
See doctor or visit hospital in last 12 months?	65,5
Admission last 12 months?	53,4
Previous laparotomies?	37,9
Psychiatric illness?	00,0
Pain at onset of illness?	25,9
Pain present at diagnosis?	43,1
Pain at any time during the present illness?	24,1
Pain during the last month?	6,9

More than 72% of the patients indicated "no pain" (as measured by the VAS) while more than 84% indicated that the pain had not been troublesome. It can be concluded that, in general, laparotomy patients do not indicate severe levels of pain or pain affecting their daily activities prior to the laparotomy.

2.2 Reliability and Validity of the POMS

The POMS has been discussed in chapter 6. It consists of 65 items and purports to measure six mood

scales. The POMS was administered to each of the 58 laparotomy patients individually, 24 hours before the laparotomy was performed.

The responses were subjected to an item analysis and Cronbach alpha coefficients (Hays, 1963; Winer 1971) were computed for each of the six scales. These coefficients are measures of the internal consistency (reliability) of the factors and are reported in Table 7.6.

**Table 7.6: Reliability of the Factors of the POMS:
Cronbach alpha coefficients (N = 58)**

Factor	Cronbach Alpha
Tension-Anxiety	0,87
Depression-Dejection	0,94
Anger-Hostility	0,91
Vigor-Activity	0,89
Fatigue-Inertia	0,89
Confusion-Bewilderment	0,85

The internal consistency is acceptably high for each of the factors compares favourably with values reported by other researchers (Lorr, Duston & Smith, 1967; McNair, Lorr & Droppleman, 1992). To answer the question concerning the construct validity of these factors, this study computed scores for each factor for each of the 58 patients and then calculated the intercorrelations between these factors. The intercorrelations were found to be high between all the scales, except with vigor-activity. When vigor-activity is excluded, intercorrelations varied from 0,70 to 0,91. The intercorrelations with vigor-activity varied from 0,09 to

0,33. It is apparent that the intercorrelations are high for the five factors except for vigor-activity.

A subsequent factor analysis performed on the intercorrelation matrix confirmed that, except for vigor-activity, all the other six factors might be combined to form a single "second-order" factor.

One might conclude from these results that the present study could not demonstrate sufficient discriminant/divergent validity for the different factors of the POMS. In fact, the Cronbach Alpha computed for five of the factors combined (treating the items in the factors as if they are items in a single test), was found to be 0,98, which is very high. It was decided to calculate such a combined score for the five factors for each patient and call this factor a "general mood factor." The factor vigor-activity is, however, retained as a separate factor in Study 2 as well as Study 3.

2.3 Reliability and Validity of the VAS and WBPQ

These two measures (VAS and WBPQ) were discussed in chapter 5. In this study these two instruments were applied to each of the 58 laparotomy patients post-operatively, and individually, as follows:

Day 1 No medication - immediately after the operation when patients could be considered to be without pain medication, or the effects of pain medication prior to the operation might have worn off. These measures will be called VAS1 and WBPQ1 and are

"no-pain medication" measures of pain.

At medication peak, 30 minutes after medication, when the patients could be considered to be under optimal pain medication. These measures will be called VAS2 and WBPQ2 and are "under pain medication" measures of pain.

Day 2 During medication trough, 6 to 7 hours after pain medication, when the effects of pain medication administered previously should have worn off. These measures are called VAS3 and WBPQ3 .

At medication peak, 30 minutes after pain medication, when the subjects could be considered to be under optimal pain medication. These measures will be called VAS4 and WBPQ4.

Table 7.7 compares the "no-pain medication" measures to the "under pain medication" measures by performing t-tests for dependent measures on the differences between "before" and "after" pain medication pain measures.

Table 7.7: A comparison of pain with and without medication, as measured with the VAS and the WBPQ

Variable	Mean	SD	df	t	p-value
VAS1 (before)	9,15	1,63			
VAS2 (after)	0,20	0,52			
VASDIF1 (difference)	8,94	1,60	57	42,45	0,0001
VAS 3 (before)	8,17	2,27			
VAS4 (after)	0,29	0,97			
VASDIF2 (difference)	7,87	2,41	57	24,85	0,0001
WBPQ1 (before)	163,94	31,87			
WBPQ2 (after)	5,00	11,31			
WBPQDIF2 (difference)	158,94	31,36	57	38,59	0,0001
WBPQ3 (before)	148,27	45,41			
WBPQ4 (after)	3,08	12,00			
WBPQDIF2 (difference)	145,18	45,06	57	24,53	0,0001

From the table it is clear that pain medication (pethidine) results in a significant decrease in pain as measured by the VAS and the WBPQ, proving the predictive validity of both measures.

The question now arises as to how the pain measures of the VAS and WBPQ correlate. These correlations are given in Table 7.8.

Table 7.8:

Correlations between VAS and WBPQ pain measures (N = 58), with p-values below the correlations.

TEST	VAS1	VAS2	VAS3	VAS4	WBPQ1	WBPQ2	WBPQ3	WBPQ4	VAS- DIF1	VAS- DIF2	WBPQ- DIF1	WBPQ- DIF2
VAS1	1,000 -----											
VAS2	0,209 ¹ 0,115 ²	1,000 -----										
VAS3	0,813 0,000	0,190 0,151	1,000 -----									
VAS4	0,103 0,439	0,016 0,901	0,071 0,592	1,000 -----								
WBPQ1	0,901 0,000	0,203 0,126	0,762 0,000	0,029 0,823	1,000 -----							
WBPQ2	0,219 0,097	0,472 0,000	0,199 0,132	0,014 0,915	0,222 0,092	1,000 -----						
WBPQ3	0,653 0,000	0,167 0,203	0,886 0,000	0,121 0,361	0,823 0,000	0,156 0,242	1,000 -----					
WBPQ4	0,135 0,310	0,064 0,632	0,168 0,205	0,874 0,000	0,051 0,698	-0,022 0,886	0,161 0,225	1,000 -----				
VAS- DIF1	0,948 0,000	-0,112 0,339	0,764 0,000	0,099 0,456	0,849 0,000	0,069 0,604	0,812 0,000	0,116 0,382	1,000 -----			
VAS- DIF2	0,726 0,000	0,173 0,139	0,915 0,000	-0,335 0,010	0,708 0,000	0,182 0,169	0,787 0,000	-0,193 0,145	0,682 0,000	1,000 -----		
WBPQ- DIF1	0,836 0,000	0,036 0,788	0,703 0,001	0,025 0,851	0,936 0,000	-0,134 0,314	0,780 0,000	0,060 0,649	0,838 0,000	0,654 0,000	1,000 -----	
WBPQ- DIF2	0,823 0,000	0,152 0,254	0,848 0,000	-0,110 0,410	0,816 0,000	0,163 0,220	0,964 0,000	-0,103 0,440	0,787 0,000	0,845 0,000	0,771 0,000	1,000 -----

¹ Pearson product moment correlation

² P-value of correlation coefficient

From Table 7.8 the following results are noteworthy:

- * Good test-retest reliability is implied by the high correlations between VAS1 and VAS3, and between WBPQ1 and WBPQ3.
- * Concurrent validity is implied by the high correlations between VAS1 and WBPQ1, as well as between VAS3 and WBPQ3 (and to a lesser extent by the correlations between VAS2 and WBPQ2, and VAS4 and WBPQ4).
- * The relatively low correlations between VAS1 and VAS2, VAS3 and VAS4, WBPQ1 and WBPQ2, and between WBPQ3 and WBPQ4, indicate that the degree of pain relief due to medication varies considerably from patient to patient.

2.4 The Relationships between Pre-operative Mood States and Post-operative Pain

The General mood factor and vigor-activity factor scores obtained for each of the 58 patients pre-operatively, were correlated with the various post-operative VAS and WBPQ pain measures. As none of the correlations are close to significance, these correlations will not be reported here. It can be concluded that Study 2 could not demonstrate any linear relationships between pre-operative moodstates as measured by the POMS and post-operative pain experience.

2.5 Summary of Results

Study 2 found that the internal consistencies of the POMS were high but since the correlations between all the factors are very high (with the exception of vigor-activity), it could not be shown that the five factors deserve separate treatment. In this sense the individual factors of the POMS could not be shown to have construct validity.

The instruments used to measure pain, namely the VAS and the WBPQ, do correlate highly with one another, thus demonstrating both good reliability and concurrent validity. Also, as far as measures of the VAS over time (VAS1 with VAS3; VAS2 with VAS4), and measures of the WBPQ over time (WBPQ1 with WBPQ3; WBPQ2 with WBPQ4) correlate highly, these measures have high test-retest reliabilities.

Measures of pain "under no medication" conditions (e.g., VAS1 and WBPQ1) appear to correlate relatively low with measures of pain under medication peak conditions (e.g., VAS2 and WBPQ2) - suggesting that the effect of pain medication on the degree of pain relief might vary considerably from patient to patient. Put differently, the relatively low correlations between "before medication" and "after medication" measures of pain might indicate that pain medication has a differential effect on patients. However, the fact that both pain measures strongly reflect the effect of pain medication, proves them both to be valid instruments for assessing pain in Setswana-speaking subjects.

Finally, pre-operative moodstates (as measured by the POMS) were correlated with post-operative pain measures but no relationships could be demonstrated.

The results of Study 3 are now presented.

3. Study 3: The Psychological Treatment of Pain

The main purpose of Study 3 was to determine whether cognitive behavioural therapy in combination with pain medication is more effective than pain treatment by medication only, or medication combined with reassurance therapy. These treatment approaches were discussed in detail in chapter 5. The experimental procedures were discussed in chapter 6. A secondary purpose of the study was to determine the effect of mood on cancer pain and on pain relief.

3.1 The Differential Effectiveness of Pain Treatment Methods at Two Weeks after Treatment

The first basic question was whether the three different treatments resulted in differences in pain relief in the short term (2 weeks post-treatment in this study).

The pre-treatment and short-term post-treatment mean pain scores are reported in Table 7.9. The post-treatment means, adjusted by analysis of covariance for the differences between the groups with respect to their pre-treatment pain levels, are also given. The F-test serves here to test whether the adjusted means are significantly different from one another. The last column gives p-values of t-tests performed between all pairs of adjusted means.

Table 7.9: Comparison of three treatment methods regarding their effectiveness in reducing pain two weeks after treatment. Group 1: cognitive therapy plus medication; Group 2: reassurance therapy plus medication; Group 3: medication only.

N = 45

Pain measurement scale	Treatment Group	Before treatment	2 weeks after treatment		p-values ¹ for overall F-test	p-values ² for t-tests between means
		Mean	Mean	Adj. mean ³		Group no. 1 2
VAS	1	4,07	2,11	2,07	0,000
	2	5,11	3,64	2,98		0,056
	3	2,89	3,49	4,19	 0,000 0,015
WBPQ	1	57,47	35,73		0,006
	2	112,60	44,74			0,872
	3	46,60	67,93		 0,004 0,008
¹ P-value for an analysis of covariance F-test on adjusted means ² P-value for t-tests between adjusted means ³ Post-treatment means adjusted for differences between groups regarding before treatment means by analysis of covariance						

From Table 7.9 above the three groups differed considerably with regard to their pre-treatment mean pain levels despite the fact that the groups were randomly selected. Due to these considerable differences among the pre-treatment mean pain levels an analysis of covariance design was used for adjusting the post-treatment means for differences that existed at the pre-treatment phase.

The p-values for t-tests between the adjusted means given in the last column of Table 7.9, clearly suggest that pain medication in combination with either cognitive therapy (Group 1) and reassurance therapy (Group 2) relieved pain significantly more than pain medication as the sole treatment method (Group 3). Stated differently, when pain medication is supplemented by either cognitive-behavioural therapy or reassurance therapy, a greater relief in pain is achieved. In fact, when using medication as the sole treatment method there is an increase in the mean pain level.

However, this finding does not imply that pain medication does not relieve pain. The point is that all pain measurements were taken when subjects were not under medication, or when the effect of medication was at its lowest. Therefore the treatment of pain by medication alone should be understood as treating patients for a limited time span with medication, losing the effect or potency gradually.

The differences between Group 1 (cognitive therapy) and Group 2 (reassurance) are not significant at the 0,05 level. Hence, there is no proof that cognitive therapy was more effective than reassurance therapy for relieving cancer pain.

3.2 Pain Relief Three Months after Treatment

In this section the question regarding the relative effectiveness of the three treatment methods in relieving cancer pain over a period of three months after treatment is investigated. The analysis of covariance results are reported in Table 7.10.

Table 7.10: Comparison of the three treatment methods and their effectiveness in reducing pain three months after treatment. Group 1: cognitive-behavioural therapy with medication; Group 2: reassurance therapy with medication; Group 3: medication alone.

N = 45

Pain measurement scale	Treatment group	Before treatment	3 months after treatment		p-values ¹ for overall F-test	p-values ² for t-tests between means	
		Mean	Mean	Adj. Mean ³		Group no. 1	Group no. 2
VAS	1	4,07	0,80	0,78	0,000	
	2	5,11	4,56	4,24		0,000
	3	2,89	1,89	2,27		0,001	0,000
WBPQ	1	57,47	20,40	29,36	0,000	
	2	112,60	98,53	74,07		0,000
	3	46,60	58,93	74,49		0,000	0,961

¹ P-value for an analysis of covariance F-test on adjusted means

² P-value for t-tests between adjusted means

³ Post-treatment means adjusted for differences between groups regarding before treatment means by analysis of covariance

From Table 7.10 it would appear that treatment of pain by medication in combination with cognitive-behavioural therapy (Group 1) is the most effective of the three treatments used over a three month period. An unexpected result is that in the case of VAS measurements, treatment of pain by medication in combination with reassurance therapy (Group 2) was less effective than treatment of cancer pain by medication only (Group 3). A possible explanation might be that reassurance

therapy had some placebo effect in the short term but lost its effect over an extended period of time, possibly because patients became disillusioned by the reassurances given by the therapist. The results of the WBPQ confirm such an interpretation, as there is no difference in the pain experienced by Groups 2 and 3 after the three month period.

3.3 The Effect of Mood on Cancer Pain and on Pain Relief

Hypotheses were advanced that (i) there is a relationship between perceived mood and the intensity of pain prior to treatment, and (ii) there is a relationship between perceived mood and effectiveness of pain treatment. Scores on the general mood factor and vigor-activity factor were first correlated with pain measurements before the onset of treatment (Table 7.11).

Table 7.11:

The relationship of the general mood and vigor-activity factor of the POMS to pain experienced before onset of treatment. (N=45).

Mood state factor	Pain measure	
	VAS	WBPQ
General mood	0,16 ¹	0,11
Vigor-activity	0,21	0,13

¹Pearson product moment correlations

None of the correlations are significant at the 5% level. This is in line with the finding in Study 2 that pre-operative

mood does not affect post-operative pain. However, one should not conclude from the non-significant correlations that mood states do not relate to the pain experienced, as there may be qualitative effects not investigated in this study.

These POMS factors were next correlated with the degree of pain relief experienced two weeks after treatment (Table 7.12) as well as three months after treatment (Table 7.13).

Pain relief was calculated as the difference between before treatment and after treatment scores on the VAS and WBPQ. The POMS factors were correlated with these difference scores.

Table 7.12: Pearson product-moment correlation coefficients between POMS factor scores and difference scores computed between before and two weeks after treatment pain measurements. N = 15 in each group.

Mood state factor	Cognitive-behavioural therapy + medication		Reassurance + medication		Medication only	
	VASDIF	WBPQDIF	VASDIF	WBPQDIF	VASDIF	WBPQDIF
General Mood	0,13	0,29	-0,13	-0,04	-0,63*	-0,05
Vigor-activity	0,15	-0,05	0,05	0,04	0,07	0,14

*Significant at the 5% level

Table 7.13: Pearson product-moment correlation coefficients between POMS factor scores and difference scores computed between before and three months after pain measurements. N = 15 in each group.

Mood state factor	Cognitive-behavioural therapy + medication		Reassurance therapy + medication		Medication only	
	VASDIF	WBPQDIF	VASDIF	WBPQDIF	VASDIF	WBPQDIF
General Mood	0,24	0,17	-0,07	0,23	0,14	0,13
Vigor-activity	0,04	-0,18	0,16	0,28	-0,03	-0,31

With the exception of a single correlation ($r = -0,63$) none of the correlations in the Tables 7.12 and 7.13 is significant at the 5% level. The two POMS factors are therefore unrelated to the degree of pain relief obtained through the three treatments.

3.4 Summary of Results

The results of Study 3 are best summarised by Figure 7.1 (for VAS pain measurements) and Figure 7.2 (for WBPQ pain measurements). In the short term (two weeks after initial treatment) both cognitive-behavioural therapy and reassurance therapy in combination with medication, are more effective in relieving cancer pain than treatment by medication alone. Whether cognitive behavioural therapy is more effective than reassurance therapy in the short term is not quite clear, but it does appear to be the case three months after the initial

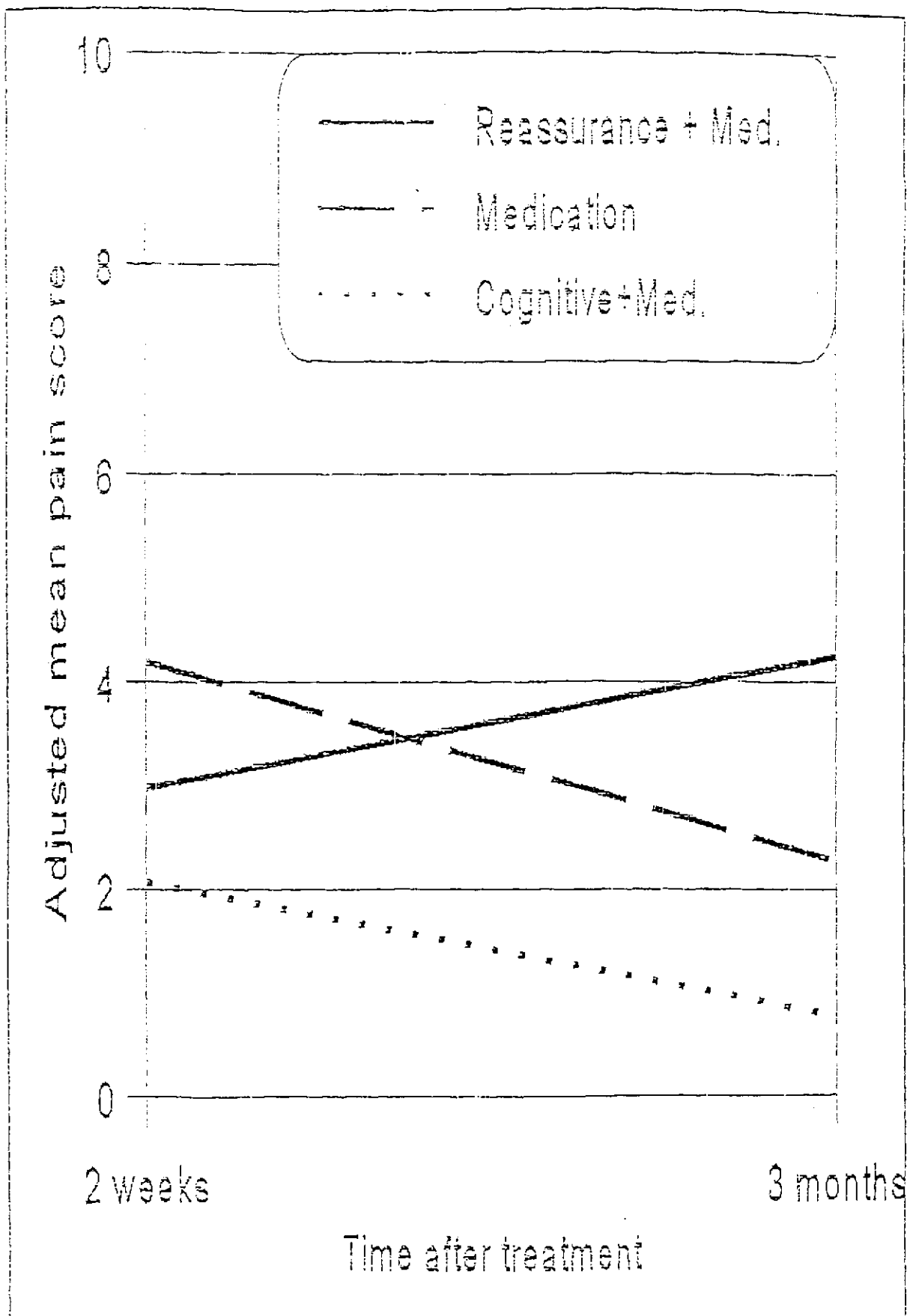


Figure 7.1: Comparison of treatment groups with respect to pain as measured by the VAS

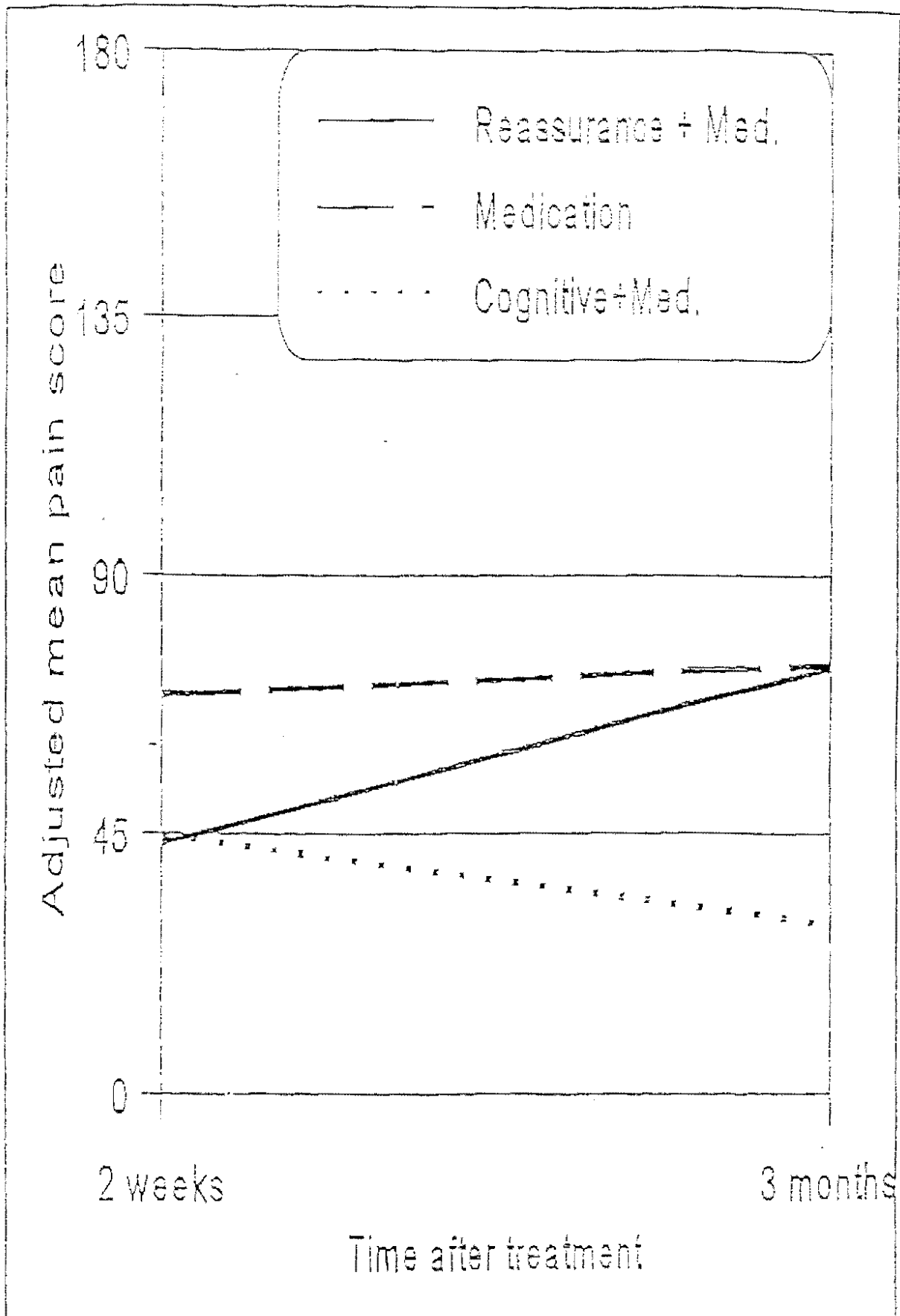


Figure 7.2: Comparison of treatment groups with respect to pain as measured by the WBPO

treatment. Over an extended period cognitive behavioural therapy, in combination with medication is clearly the more effective of the three treatment methods while reassurance therapy in combination with medication is not more effective than treatment by medication only. The implications of these results will be discussed in the next chapter.

CHAPTER 8

DISCUSSION

1. Introduction

Before discussing the implications of the results of the three studies conducted, this chapter briefly explores some of the basic ideas on pain given in the first six chapters. This is done to give the reader some perspective on the research problem. This chapter also discusses the results of the three studies in terms of their original hypotheses and the literature reviewed. Chapter 1 dealt with the problem "what is pain?" In an attempt to answer this question, various definitions of pain were put forward highlighting the subjective nature of pain and suggesting that pain is a natural response to a mechanical, thermal, or chemical stimulus, or perceived tissue damage.

Pain research is complicated by the problem that there are many factors which influence how much pain a person feels and how much pain a person reports. Chapter 2 explored some of the basic ideas behind the theories of pain, namely the mechanistic view including the specificity theory and pattern theory leading to the gate-control theory of pain. From a biological view, no pain would be expected when there is no injury, and every injury should result in pain. However, there are reports of quite severe injuries being suffered with little pain (Beecher (1946)). There are so many exceptions to the

biological view of pain that it must be seen as an oversimplification.

There are people who are born without the ability to feel pain. Studies on congenital insensitivity to pain indicate that there is more to pain than the mere signal of tissue damage or injury through the stimulation of receptors.

The biological perspective does not include the social and psychological dimensions of pain and the context in which it occurs, which determine the meaning of pain for the individual and for those around him or her. Because the biological perspective focuses more on the physical dimensions of pain, factors such as personality are seen as irrelevant.

Due to these shortcomings, Melzack and Wall (1965; 1983) suggested a new theory of pain which they have revised. This theory was discussed in chapter 3. Briefly they suggest that the experience of pain involves not only physical sensations from an injury but also emotional and evaluative reactions to these sensations. They argue that signals from an injured site run to the dorsal horn of the spinal cord which acts like a kind of a gate between the peripheral fibres and the brain. The gate is opened (i.e., the dorsal horn cells are excited) by small fibres from the site of stimulation and closed by other large inhibitory fibres from the same site. The gate is also affected by fibres from the brainstem reticular formation, which serve to excite or inhibit the dorsal horn cells. The reticular formation is also affected by cortical activity, so that past experiences, anxiety, attention, and the meaning of the situation influence the opening and closing of the gate. Thus, a person who has had painful experiences in the past or who expects much pain, could

actually experience more distress. In summary, pain perception is a complex experience which may be related to nociception or to altered activity in the nervous system. At every level the experience may be modulated by afferent stimuli, long-standing changes in the neuronal function, and a complex mixture of cognitive and behavioural activities. Pain is also a psychological experience. As part of the development of the gate-control theory Melzack and Wall (1965) describe the "action system" in the brain that is triggered when a noxious stimulus arises, when the sensory nervous impulses reach the brain. When activated, this system involves the sensory cortex which analyses the nature and site of pain; the motor cortex where the motor response is generated or inhibited; the limbic system from which comes the emotional response; and the memory and special senses. Thus, all pain is perceived in the whole aware brain. Without awareness there is no pain. Melzack and Wall (1965, 1983) use this model to account for many of the observations made by Beecher (1946) on phantom limb pain and congenital insensitivity to pain.

Authorities on pain and psychological theories of pain, agree that a number of variables play a role in the perception of pain. These variables are: (i) personality factors (ii) earlier experiences of pain, (iii) the situation in which the pain is experienced, (iv) the reaction of people associated with the person experiencing pain, and (v) the person's cultural and social background (Engel 1976; Merskey & Spear 1967; Sternbach 1974). Taken together, these studies demonstrate the fallacy of the distinction which is often made between the mind and the body, between anatomy, biochemistry, and physiology on the one hand, and psychology and sociology on the other.

While this distinction between the biological and behavioural sciences has a certain advantage, it can lead to some misleading assumptions. It is certainly not a useful approach where pain is concerned. Consideration of these ideas is important for understanding the measurement of pain and the psychological approaches to pain relief. The important point here is that psychological, physiological, and situational factors interact to produce what a person experiences.

Different cultural groups, for example, express their pain differently, with some reporting more than others (Zola, 1966). Both sociological and psychological studies on pain have frequently cited the role of culture, age, and gender in pain perception. Sternbach (1974) also reports that cultural background and ethnic membership can affect pain tolerance, as well as physiological responses to experimentally induced pain. Thus the problem for this study was to determine whether variables such as age, gender, and one's cultural background mediate the perception of pain. The Setswana language group was studied for this purpose using the Pain Apperception Test (PAT) for the gathering of data (Study 1). Both hospitalised and non-hospitalised subjects were interviewed using open ended questions.

The importance of words relating to pain has long been recognised by authorities working on pain (Melzack 1983; Melzack & Torgerson 1971). According to Kleinmann (1990) each culture has a language of distress which signifies to the observer that they are in pain. This language of pain is also used by medical practitioners as one of the methods for determining pain arising from certain pathologies. Most investigations have been carried out in overseas countries and very little is known

about the contents of a pain language among the Setswana-speaking group despite the fact that the language of pain is regarded as an important tool in the assessment of pain. Therefore, the problem was: what are the contents of a pain language among the Setswana-speaking group? To answer this question, Study 1 was conducted.

The experience of pain is usually accompanied by moods as indicated by Melzack and Wall (1965, 1983). These moods are usually anxiety in the case of acute pain and depression and other moods in the case of chronic pain. Therefore, it became necessary to understand the mood states of pain patients. These moods could be identified with a measurement which is reliable and valid. Setswana-speaking females who were suffering from acute surgical pain were used for this purpose. The Profile of Mood States (POMS) was used as a measure for identifying moods accompanying acute pain arising from surgery (Study 2) and those moods arising from chronic cancer pain (Study 3). The reliability and validity of the Profile of Mood States was also addressed in both Studies 2 and 3.

Studies on the measurement of pain recognise that pain is a multidimensional construct which requires some kind of indirect method to assess it, since it is a subjective experience. These studies also recognise that pain assessment tools should be reliable and valid, and that subjective reports of pain or pain relief should be amenable to statistical analysis. The Winsconsin Brief Pain Questionnaire, which is the measurement used in this study, incorporates a pain relief scale and has been found to be reliable and valid (Daut et al., 1983). Similar research on the reliability and validity of the Wisconsin Brief Pain Questionnaire is at present non-existent in South Africa. The problem was: how reliable are pain

measurements when used with non-Western subjects? Study 2 also addressed itself to the reliability and validity of the Wisconsin Brief Pain Questionnaire.

To assess its reliability and validity, the Visual Analogue Scale (VAS) developed by Huskisson (1974) and found to be valid by Downie et al., (1978) this pain measure was also used concurrently with the WBPQ. Both instruments have been used extensively overseas but not in South Africa. The obvious way to test the validity of these self-report measures of pain, was to provide analgesics and then look for differences in pain reports. This was done in study 2.

Analgesics relieve some pain but not all pain. They only relieve pain temporarily. Analgesic are rarely an answer to pain which may go on indefinitely. The more powerful the drug, the greater the potential side effects, dependence, and tolerance. Hence pain should be alleviated with the minimum use of drugs. This involves exploring other treatment methods for the relief of pain.

Psychological treatments have been extensively used in the alleviation of pain overseas, but their effectiveness with Setswana-speaking subjects was not scientifically established. It was therefore important to establish the efficacy of these pain treatment methods on Setswana-speaking subjects suffering from cancer pain (Study 3). The research question was: how effective are psychological treatment methods of pain when used with non-Western subjects?

Cancer patients who are Setswana speaking and experiencing pain, were used for evaluating the efficacy of cognitive behavioural therapy of pain (progressive muscle relaxation, autogenic phrases, context transformation, and self-control statements), and

reassurance therapy. Pain medication was constant throughout the treatment. According to the Gate-Control Theory, there are three components which contribute to the experience of pain, namely the sensory-discriminative, the affective-motivational, and the cognitive evaluative. Modification of any of these would be expected to reduce the distress felt by an individual experiencing pain.

In studies of pain relief it is important to include a group of people who do not receive the psychological treatment but instead receive an equally plausible alternative. This is to control the placebo effects which are those effects of a procedure that are not due to the treatment itself, but rather to circumstances surrounding it. This includes the warmth and enthusiasm of the therapist, and the patient's hopes and expectations that she or he will get better. In this study there were three treatment groups of patients. The first group was taught relaxation exercises and were taught various methods of distracting their attention from pain and cognitive modification methods. Pain assessments were done at baseline, two weeks after treatment, and three months after treatment. The second group was given reassurance therapy. The third group of patients was given no psychological intervention. Their pain treatment proceeded as usual with pain medication only.

With such a variety of pain control methods available, an important question concerns when to use one technique in preference to another.

If one kind of intervention could be shown to be superior to other kinds, then perhaps this would be the treatment of choice for most cancer patients suffering from pain.

The research reported in this thesis was conducted as three conservative studies namely, Study 1, 2 and 3. Study 1 examined the perception of pain among Setswana-speaking subjects including the role played by gender and age in the mediation of pain perception using the Pain Apperception Test (PAT). Furthermore using the Pain Eliciting Incidents Questionnaire (PEIQ), study 1 examined the contents of a pain vocabulary of Setswana-speaking subjects and these were analysed within the framework of Melzack and Torgerson's (1971) classification system.

Study 2 developed a Setswana version of the Profile of Mood States (POMS) and the Wisconsin Brief Pain Questionnaire WBPQ, and investigated the reliability and validity of these measures. Study 2 also attempted to establish the relationship between pre-operative mood states and acute pain using the POMS and WBPQ.

In Study 3 the efficacy of cognitive-behavioural therapy (progressive relaxation, autogenic phrases, and imaginal coping strategies, including reinforcing self statements) was evaluated in an experimental design.

The results of these studies are discussed below.

2. Study 1 : The Apperception of Pain and the Language of Pain

The purpose of this study was to investigate the ideational content of perceived pain in an adult male, female, and child and to investigate the descriptors of pain in Setswana-speaking subjects.

In the apperception study the subjects were requested to describe what they saw, what was happening, what would be the outcome, and who was in more pain and why. The

apperception test displayed three individuals, namely an adult male, an adult female, and a child whose legs were crushed by a motor vehicle. The underlying assumption was that the resultant pain had a describable objective basis, associated with discernible tissue damage. The location and the magnitude of the injury was the same in the three individuals (perceptual information), but the amount of pain perceived might not be the same due to the mediation of individual and social factors encompassing past experiences and expectations. The hypothesis put forward was that Setswana-speaking subjects have a vocabulary for pain which is classifiable according to the Melzack and Torgerson (1971) system.

The results of this study indicate consistency of responses to the first two questions posed to the subjects. The verbal expressions used to describe pain were the same for both the adult male and female, and the child. Behavioural signs of pain such as the tightening of the facial and bodily muscles, were perceived to indicate pain and distress. These results suggest that social and cultural expectations were operating. The third question posed to the subjects namely "what will be the outcome?" brought about responses which centred on the immediate and long-term effects of pain leading to a severe curtailment of lifestyle, especially for the adult male and adult female. The discomfort arising from pain can pervade a person's lifestyle, such that activity is restricted, marital satisfaction, social interactions, and recreational activities are severely affected. These difficulties illustrate the complexity of the phenomenon, since pain is open to many influences. The child was perceived to be more resilient to changes brought about by pain, although his or her recreational activities and

social interaction with peers could still be affected. The responses to the last question, namely who is in more pain and why? showed no correspondence between pain, age, and gender. Therefore this aspect of the study does not support the previous studies which found an association between pain and gender.

The study on the language of pain sought the descriptors of pain in Setswana in response to the Pain Eliciting Questionnaire (PEIQ). The results reveal that there is reasonable consistency and agreement among the pain and no pain subjects with regard to their responses to all the questions of the PEIQ.

We may conclude that Setswana-speaking subjects have a broad notion of pain and their pain language includes a broad category of experiences. The results revealed that the language of pain can be classified according to a contemporary framework of pain with the three dimensions sensory-discriminatory, affective-motivational, and cognitive-evaluative, as postulated by Melzack and Torgerson (1971).

As there were no marked differences between the pain and no pain subjects in response to the PEIQ, it would seem that the presence of pain at the time of the study did not affect the descriptors given to the various imagined pain experiences. At this stage the formulation of specific conclusions may be useful.

1. Setswana-speaking persons have a broad vocabulary for pain, arising from various pain eliciting experiences.
2. Hospitalised Setswana-speaking subjects suffering from pain and pain-free Setswana-

- speaking subjects use the same descriptors in response to the PEIQ.
3. The Setswana pain vocabulary is characterised by a distinctive pattern of verbal descriptors that could be classified as sensory-discriminatory, affective-motivational, and cognitive-evaluative with each pattern reflecting certain qualities associated with the pain experience.
 4. The Setswana pain vocabulary sometimes combines two pain descriptors to convey the meaning attached to a pain experience.
-
3. **Study 2: The Reliability and Validity of the POMS and WBPQ**

3.1 The Reliability and Validity of the POMS

It was hypothesised that the POMS is a reliable and valid measure of mood in Setswana-speaking surgical patients undergoing laparotomy, and that the WBPQ is a reliable and valid measure of pain in Setswana-speaking subjects.

The POMS and the WBPQ were translated into Setswana. The POMS was administered pre-operatively to 58 laparotomy patients.

The Cronbach Alpha coefficients for each of the mood factors of the POMS were found to be high, but unfortunately the correlations between five of the six factors (excluding vigor-activity) were also very high, ranging between 0,71 and 0,90. The correlations found in

the current study appear to be too high to confirm the divergent validity of these factors.

The high inter-correlations found between the five factors of the POMS, suggest that these five factors might be combined to form a single "general mood" factor. The Cronbach Alpha was consequently calculated for such a scale consisting of all the items of these five factors and found to be 0,98. It was decided to use this "general mood" factor and the "vigor-activity" factor for subsequent statistical comparisons between groups.

The lack of divergent validity of the POMS could possibly be attributed to the low educational standard of the subjects, including subjects without any formal education. Moods and pain are an integral experience and it is possibly difficult for these individuals to isolate one specific emotion from all others.

This ties in with an observation by Leff (1978) in a study comparing psychiatrist's and patient's concepts of unpleasant emotions. He found that psychiatrists clearly differentiated between anxiety, depression, and irritability as discrete types of emotional distress, while the patients saw them as closely overlapping. To patients somatic symptoms such as palpitations, excessive perspiration, or shakiness were as characteristic of depression as of anxiety. In the current study this tendency might influence how patients respond to specific questions or phrases such as "anxious", "nervous", and "panicky".

3.2 The Reliability and Validity of the WBPQ

The WBPQ and the VAS were applied post-operatively to the 58 laparotomy patients prior to the ingestion of pain medication (no medication) and 30 minutes after pain medication was given (peak level). Thereafter the pain assessments were carried out at the trough level and peak level for two consecutive days including the day of surgery. The high correlations between repeated measurements on the WBPQ and the VAS indicate that both these measures have a reasonable repeated-measures reliability. The high correlations between the WBPQ and the VAS measurements also indicate an acceptable concurrent validity for the WBPQ, thus confirming previous findings (Daut et al., 1983).

Previous findings addressing the reliability and validity of the WBPQ concentrated on the measurement of chronic pain (Daut et al., 1983). However, this study investigated the reliability and validity of the WBPQ on acute post-operative pain, thereby providing evidence of its reliability and validity as a measure of acute pain. The results on the reliability and validity of the WBPQ also support some of the criteria on which pain intensity scales have been judged, namely that the scale should

- (a) detect treatment effects,
- (b) assess various aspects of pain (acute and chronic), and
- (c) correspond with other pain measures (Anastasi 1990; Cronbach 1984; White 1993).

The major implication of this study is that the WBPQ can be used across cultures as a reliable and valid

measure of pain, provided the necessary adaptations are made, such as:

- (a) translating it into the language used by the intended target group, and
- (b) adapting the intensity scales from numbers to analogue scales with a pointer.

3.3 The Relationship between Pre-surgical Mood States and Post-operative Pain

This study failed to establish a relationship between pre-operative mood states in pre-laparotomy patients and the intensity of their surgical pain. Previous studies established a relationship between pre-surgical anxiety and post-operative pain (Andrew 1970, Chapman & Cox, 1977; Egbert et al., 1964; Langer, et al., 1975; Scott, Clum & Peoples, 1983; Martinez-Urratia, 1975).

However, the POMS was found not be able to differentiate various mood states in Setswana-speaking patients, possibly due to the language of distress as used by Setswana subjects. Until this issue of the divergent validity of the POMS for Setswana-speaking subjects is cleared up by future research, a conclusion as to the presence or not of a relationship between pre-operative mood states and post-operative pain must be put on hold.

3.4 Conclusion and Recommendations

Based on the findings of this study, it can be concluded that the WBPQ is a sensitive, reliable, and

valid measure of pain for Setswana-speaking subjects. It is able to detect treatment effects reflecting the effects of prescribed pain medication. It is recommended that:

- (a) a test for assessing emotional states in Setswana-speaking people with no formal education and those with minimal formal education, be constructed using the lay person's conceptions of emotional distress.
- (b) a large enough sample be used in this research to justify the use of maximum likelihood factor analysis.

4. Study 3: The Psychological Treatment of Pain.

The basic question addressed by this study was whether cognitive behavioural therapy in combination with pain medication could be used to control chronic cancer pain in the short and long term, compared to reassurance therapy combined with pain medication and pain medication only as a treatment of cancer pain.

4.1 The Efficacy of Cognitive Behavioural Therapy, Reassurance Therapy and Analgesics in the Amelioration of Chronic Cancer Pain

A three-group repeated measures design was used to compare three treatment methods for controlling chronic cancer pain. It was found in the short term that the two psychological treatments of pain, namely cognitive behavioural therapy in combination with medication, and reassurance therapy in combination with medication, were

equally effective in the control of cancer pain. Medication alone was not as effective as the two other treatments, thus lending further support to previous studies on the efficacy of cognitive-behavioural treatment methods on chronic cancer pain (Moore & Altmaier 1981; Weisman, et al., 1980).

Reassurance therapy or attention placebo has been previously found to ameliorate dental pain by 35% (Evans, 1985), but no evidence exists in the literature reviewed as to its efficacy in the control of cancer pain. This study therefore provides information on its ability to control cancer pain over a short period.

In the long-term cognitive-behavioural therapy in combination with medication was found by this study to be more effective in controlling cancer pain than either of the other two treatment methods, thus attesting to its efficacy and confirming previous studies.

The non-significant findings for the reassurance therapy over a long term confirm previous findings by Janis (1958) who observed that reassurance therapy does not provide long-lasting relief from pain.

The researcher would like to advance some speculations as to the short-lived effect on pain relief by reassurance therapy.

Firstly, with reassurance therapy the subjects are not given any specific skills to combat pain. Secondly, they are made dependent on the therapist with the possible result that they cannot endure concurrently the distress of pain and separation from the therapist. This latter factor has to be viewed within the context of the placebo effects of treatment arising from the characteristics of the therapist, rather than from the treatment itself.

The smaller effect of pain medication compared to the two psychological treatments could be due to the fact that pain medication is effective in reducing the nociceptive components of pain arising from the diseased organ, but most probably ignores the psychological components of pain. Understanding the effect of pain on the mind is vital if it is to be successfully managed. Successful adaptation to pain requires a broad array of problem-solving and coping skills, such as those used in this study, which reduce the effect of the sensory input at the affective-motivational and cognitive-evaluation levels.

4.2 Conclusion and Recommendations

This study suggests that patients can learn to decrease the physiological arousal and psychological distress of pain through the use of cognitive-behavioural techniques. Addressing the relationships among thoughts, behaviours, and symptoms is more beneficial than providing reassurance with medication, or medication alone. Combining cognitive-behavioural therapy with analgesics (pain medication) is the most beneficial treatment for the management of cancer pain over the long term, though the effectiveness of this treatment may depend on the subjects' attitude and willingness to try different approaches. It is therefore recommended that cognitive-behavioural therapy be used also with the other major language groups in South Africa as a treatment for chronic cancer pain. As far as future research is concerned, it should be focused on each of the components of cognitive behavioural therapy for pain to assess their individual efficacy in the control of pain.

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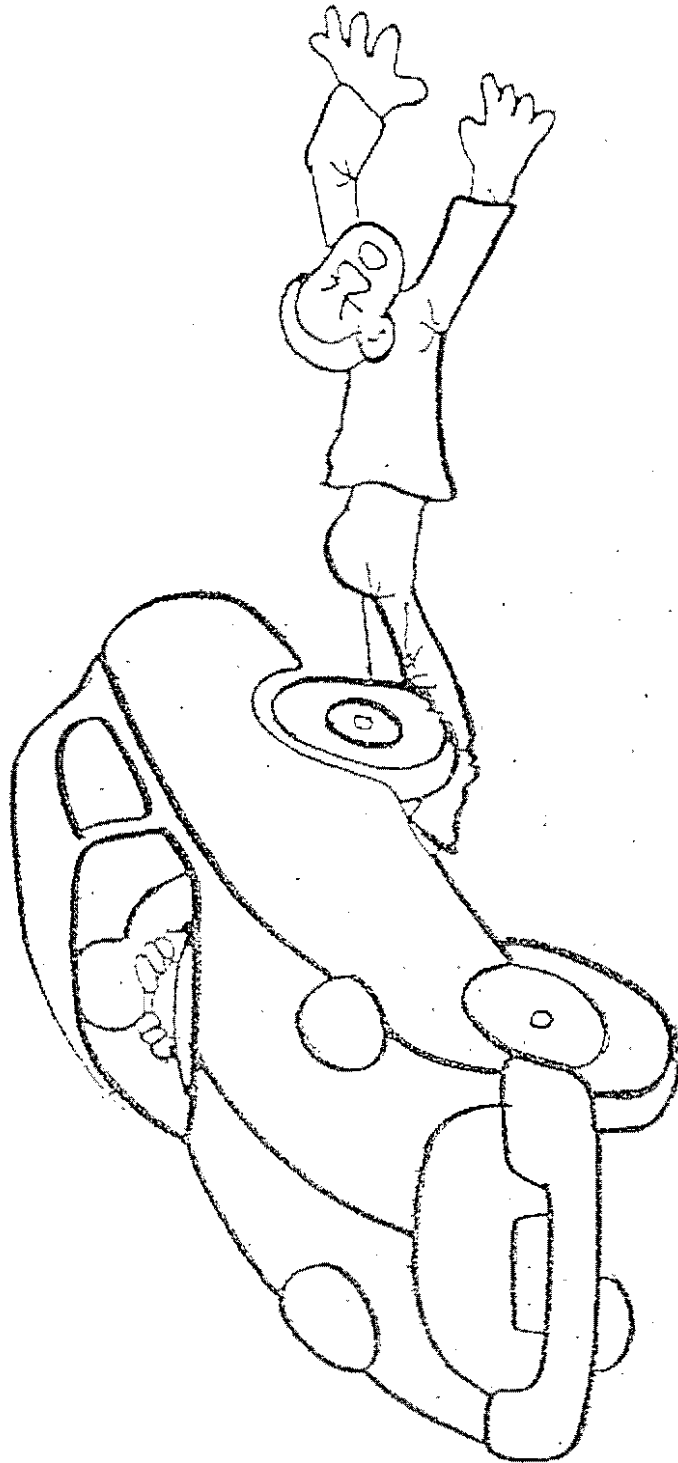
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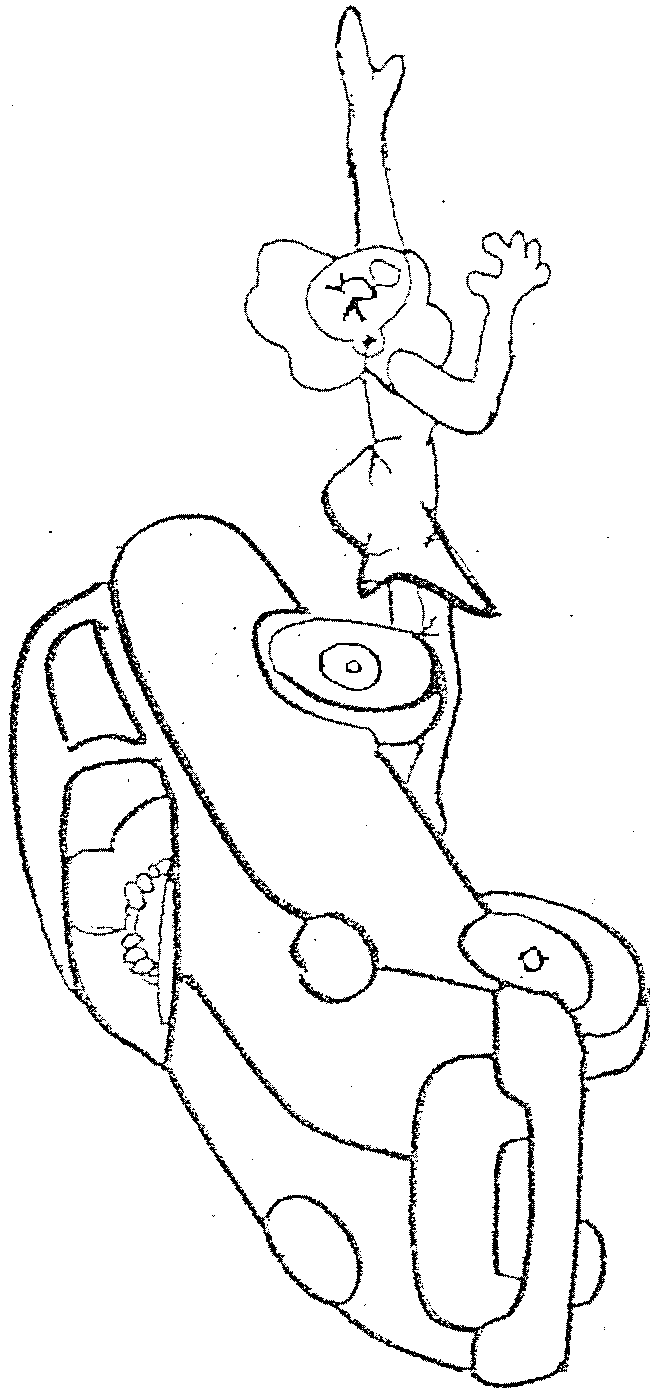
APPENDIX A

Pain Apperception Test



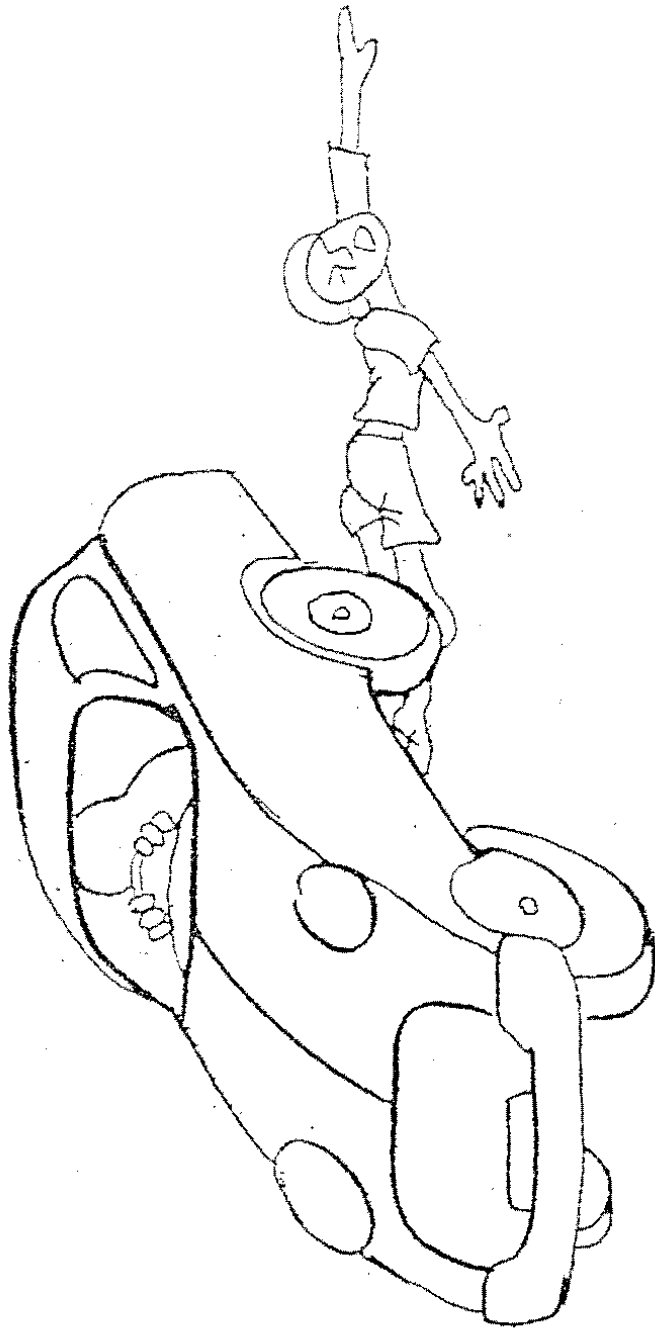
APPENDIX A

Pain Apperception Test



APPENDIX A

Pain Apperception Test



APPENDIX B

Pain Eliciting Incidents Questionnaire (PEIQ)

1. You had been running in the rain when you accidentally slipped, fell, and hit your head against the ground. How would you describe the resultant headache following the incident?
2. You had toothache last night in a tooth which the dentist extracted this morning. Unfortunately the tooth was not properly extracted and when the effect of the anaesthetic wore off, you experienced that the pain was still there, and the bleeding won't stop. How would you describe the pain?
3. If someone cut off your hands with an axe, how would you describe the pain?
4. If a heavy stone was to fall on your big toe, how would you describe the pain?
5. Let's say you were stung by a bee on your mouth while on your way to a party with a friend/spouse. You have to convince him/her of the intensity of pain that you are experiencing. Your friend has never been stung by a bee so he or she does not know what it feels like. What could you tell him about what a bee-sting on one's mouth is like, so that he or she knows why you do not want to go the party?
6. You were trying to chop a branch off a tree when the other branch you were standing on, suddenly broke.

Having nothing to hold on, you fell and your back hit a sharp stone. How could you describe the pain you felt to the doctor?.

7. Pretend that you were involved in a motor vehicle accident and when you were thrown forward your arm was badly broken. Your friend has never had a badly broken arm. What could you tell him about the pain so that he really knows what it is like?
8. If someone were unexpectedly to hit you with force on your tummy with a kierie or baseball bat, how would you describe the pain?
9. Pretend you have been run over by a bus and as a result your legs have been crushed and you cannot move. What kind of pain is it? Tell me what it feels like so I can tell the doctor and nursing sisters.
10. If somebody playfully but accidentally pushed you into a bush with long sharp thorns, what kind of pain would that be?
11. If someone asked you, "what is pain?" what would you say that pain is?

APPENDIX B

Pain Eliciting Incidents Questionnaire (PEIQ Setswana)

1. O ne o siana/taboga mo puleng fa o relela ka phoso, o wela fa fatshe obe o utlwise tlhogo ya gago botlhoko. O ka tlhalosa jang tlhogo e opang ka ntlha ya tiragalo/kotsi ya go wa?
2. O letse o opelwa ka leino le ngaka ya meno e le kgotseng/ntshitseng mosong ona. Ka bomadimabe leino ga le aka la ntshiwa ka mokgwa wa tshwanel, o jaana fa morago ga sebolaya-bogatsu se fela, o utlwa go sa na le botlhoko, gape le go dutla madi ga go emesi. O ka tlhalosa jang botlhoko jo o bo utlwang?
3. Fa mongwe a ka kgaola diatla tsa gago ka selepe, o ka tlhalosa jang botlhoko joo?
4. Fa letlapa le legolo/boima le ka wela mo godimo ga monwana o mogolo wa leoto, o ka tlhalosa jang botlhoko joo?
5. A re re o lomilwe ke notshi mo molomong fa o ne o le mo tseleng go ya moletlong le tsala ya gago. O tshwanetse go lemosa tsala kgotsa molekane wa gago ka botlhoko jo bo feteletseng jo o bo utlwang. Tsala ga a itse botlhoko jwa go lomiwa ke notshi.
6. O ne o leka go kgaola kala ya setlhare fa kala e o neng o eme mo go yona e robega ka tshoganyetso. Ka go tlhoka se o ka itshegetsang ka sone o ne wa wela ka mokwatla mo letlapeng le le bogale. Tlhalosa peine ya gago.

7. Itire o kare o amegile mo kotsing ya sejanaga mme fa o kolopegela kwa pelle wa robega letsogo mo go maswe. Tsala ya gago ga e se e ke e robege letsogo, o ka mmolelela eng ka go utlwa botlhoko gore a tlhalogany botlhoko jo o bo utlwileng.
8. Fa mongwe a ka go tshogan yetsa a go betsa ka thobane mo mpeng, o ka tlhalosa jang go utlwa botlhoko ka teng.
9. Itire e kare o thudilwe ke bese mme maoto a gago a robegile mme ga o kgone go tsamaya. O utlwa botlhoko. Mpo-le-le-le gore go utlwala jang gore ke kgone go tlhalosetsa ngaka le mooki.
10. Fa mongwe yo o tletseng motshameko a ka go kgoromeletsa mo sekgweng se go nang le mebetlwa e metelele mme e se ka bomo, ke botlhoko jo bo ntseng jang jo o tla bo tlang?
11. Fa mongwe a ka go botsa gore botlhoko ke eng, o tla mo tlhalosetsa jang?

APPENDIX B

Pain Eliciting Incidents Questionnaire (PEIQ - Northern
Sesotho)

1. O be o kitima mo puleng ge o tla redimoga, wa betha fase ka hlogo. Na o ka hlalosa hlogo yeo e tla be e go rema bjang?
2. O letse o thunyetswa ke leino, leo ngaka ya meno e le tumotsego mosong wono, bothata ke gore leino leo ga la tumulwa gabotse. Bjale e rile ge sehlare sa go bolaya bohloko se felelwa ke maatla, wa thoma go fothelwa, madi le wona a se khutse go tswa. Na o ka hlalosa bohloko bjo bjang?
3. Ge motho a ka ripa matsogo a gago ka selepe, o ka hlalosa bohloko bjo o bo kwago bjang?
4. Ge leswika la boima le ka wela monwaneng wa gago o mogolo wa leoto, o ka hlalosa bohloko bjo o bo kwago bjang?
5. Ga re tseye gore o lomile ke nose mo molomong, o le tseleng ya go ya monyanyeng le mogwera wa gago. O tla tshwanela ke go mo hlalosetsa ka mokgwa woo o fothelwago ka gona; ka ge wo mogwera, a sa ka a longwa ke nose, na o tla mo hlalosetsa bjang mahloko a gago; le gona go mo supetsa gore monyanyeng gona o ka se sa fihla.

6. O be o rema kala ya mohlare, ge kalana yeo o bego o ikokotletse ka yona e tla robega; wa hloka maitshwareletso gomme wa wela leswikeng ka mokokotlo. O ka hlaloesetsa ngaka bohloko bjoo bjang?
7. Ipeye mannong a motho yo a kilego a hlagelwa ke kotsi ya sefatanaga mme a robega letsogo. Wo mogwera wa gago ga se a ka a hlagelwa ke kotsi ye, bjale o ka mo hlaloesetsa bjang bohloko bjo o bo kwago?
8. Ge motho a ka go betha, o sa ikgopola ka thoka, mo dimpeng o ka hlalosa bohloko bjoo bjang?
9. Ga re tsee gore o gatile ke besi gomme maoto a gago a robegile moo o bilego o palelwago ke go sepela. Leka go hlalosa bohloko bjoo, gore ke kgone go botsa ngaka.
10. Ge oka re o ithalokela le motho, mme a go kgoromeletsa sehlareng sa mebetlwa ka phoso, ke bohloko bja mohuta mang bjoo o tla bokwago?
11. Ge motho a ka go botsisa potsiso ye, "sehlabi ke eng", o ka araba bjang?

APPENDIX C

Biographical Questionnaire

NAME/LEBITSO/LEINA: _____

SEX/MONG: _____

DATE OF BIRTH/TSATSI LA MATSOALO: _____

MARITAL STATUS/MAEMO A TSA LENYALO: _____

LEVEL OF EDUCATION/TSA DI THUTO: _____

OCCUPATION/TIRO/MOSOMO: _____

VISITS TO A HOSPITAL OR DOCTOR DURING THE LAST TWELVE MONTHS
_____A O KILE WA ETELA SEPETLELE KGOTSA WA YA NGAKEG MO KIKGWEDING
TSE 12 TSE DI FETILENT/A O KILE WA ETELA SEPETLELE GOBA WA YA NGAKEG MO KIKGWEDING
TSE 12 TSE DI FETILEGO: _____

PREVIOUS PSYCHIATRIC ADMISSIONS AND DIAGNOSIS _____

A O KILE WA ROBATSWA SEPETLELE KA LEBAKA LA BOLWETSE BA
TLHOGO/A O KILE WA ROBATSWA SEPETLELE KA BAKA LA BOLWETSE BJA HLOGO:
_____WAS PAIN ONE OF YOUR SYMPTOMS WHEN YOU VISITED THE DOCTOR
_____FA O TLA ETELA NGAKA A DITHLABI E NE E LE TSE DINGWE TSA DILO
TSE NE DI GO TSHWENYA/GE O TLO THOMA GO YA KO NGAKEG NAA DIHLABI E BE E LE TSE
DINGWE TSE DI BEGO DI GO HLOBAETSA _____

PREVIOUS ADMISSIONS TO HOSPITAL _____

O ROBETSE LENG LA BOFELO SEPETLELE, E FA MATSATSI

O ROBETSE NENG LA BOFELO SEPETLELE, E FA MATSATSI: _____

PREVIOUS SURGERY _____

A O KILE WA YA KALAFONG YA GO SEGIWA/

A O KILE WA YA KALAFONG YA GO SEGWA _____

APPENDIX D

Wisconsin Brief Pain Questionnaire (WBPQ)

Dear Patient

PLEASE TAKE A FEW MINUTES TO READ AND ANSWER THESE QUESTIONS. WE ARE INTERESTED IN YOUR ANSWERS EVEN IF YOU DO NOT HAVE PAIN. IF YOU HAVEN'T HAD PAIN IN THE LAST MONTH, YOU ONLY NEED TO ANSWER THE FIRST FOUR (4) QUESTIONS ON PAGE 348. THIS IS A VOLUNTARY PROCEDURE, AND YOUR TREATMENT WILL NOT BE AFFECTED IF YOU CHOOSE NOT TO FILL OUT THE QUESTIONNAIRE.

We are conducting a study on pain. Its severity, and its treatment. We would like to have your cooperation in this respect since we want to find out more information on pain and how to tailor its treatment to the needs of the individual patients.

If you agree to the study described here, please sign the last page.

PLEASE FILL IN THE FOLLOWING INFORMATION.

NAME OF PATIENT: _____

AGE: _____ DATE OF BIRTH: _____

DATE OF TESTING: _____ HOSPITAL FILE NUMBER _____

MARITAL STATUS:

Single Married Divorced Widowed Separated

EDUCATION: _____ (Number of years)

OCCUPATION: _____

(If you are not working tell us your previous occupation):

SPOUSE'S OCCUPATION: _____

NUMBER OF CHILDREN: _____

NUMBER OF DEPENDANTS: _____

VISITS TO A HOSPITAL OR DOCTOR DURING THE LAST TWELVE MONTHS:

PREVIOUS HOSPITAL ADMISSIONS (Dates): _____

DIAGNOSIS AND TREATMENT ON EACH OCCASION: _____

DIAGNOSIS AND TREATMENT ON PREVIOUS SURGERIES: _____

PREVIOUS PSYCHIATRIC ADMISSIONS AND DIAGNOSIS: _____

CHECK FILE TO VERIFY INFORMATION _____

ASK WARD STAFF AND RELATIVES FOR UNUSUAL BEHAVIOUR:

HEALTH OF PARENTS OR CAUSE OF DEATH: _____

ANY DEATHS IN FAMILY DURING THE LAST TWO YEARS:

SERIOUS ILLNESSES WITH HOSPITALIZATION: _____

1. When you first received your diagnosis, was pain one of your symptoms?

Yes No

If you answered yes to the above question, tick one of the following boxes.

Pain was a reason I went to the doctor

Pain present but not reason for doctor visit

2. Have you ever had pain due to your present disease?

Yes No Uncertain

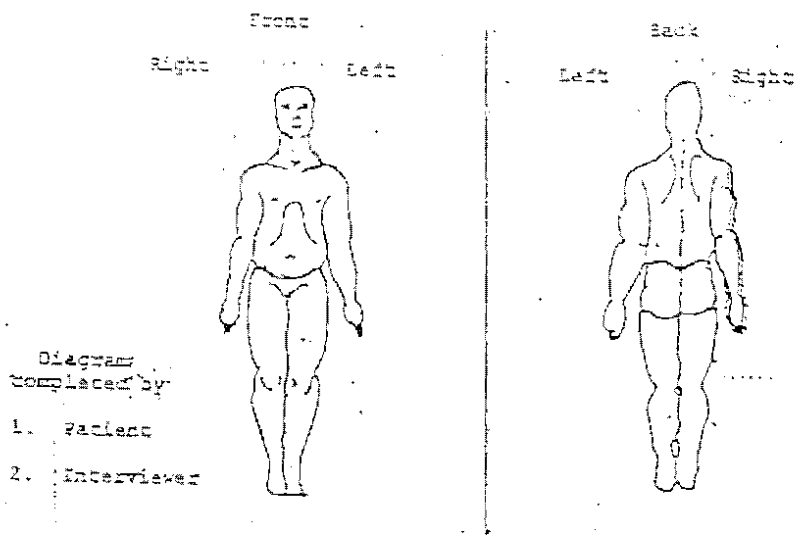
3. Have you had surgery in the past month?

Yes No

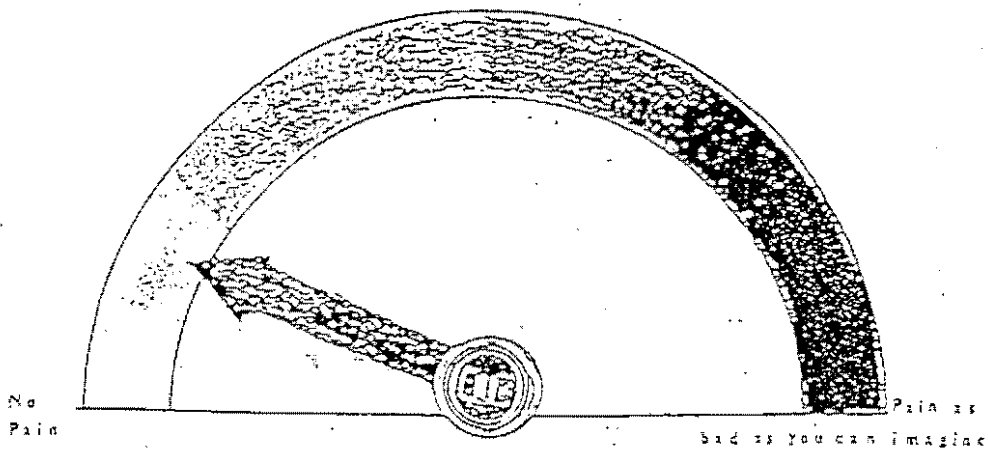
4. Throughout our lives, most of us have had pain from time to time (such as minor headaches, sprains and toothaches). We are interested in finding out if you have had pain other than these everyday kinds of pain in the last month.

Yes No

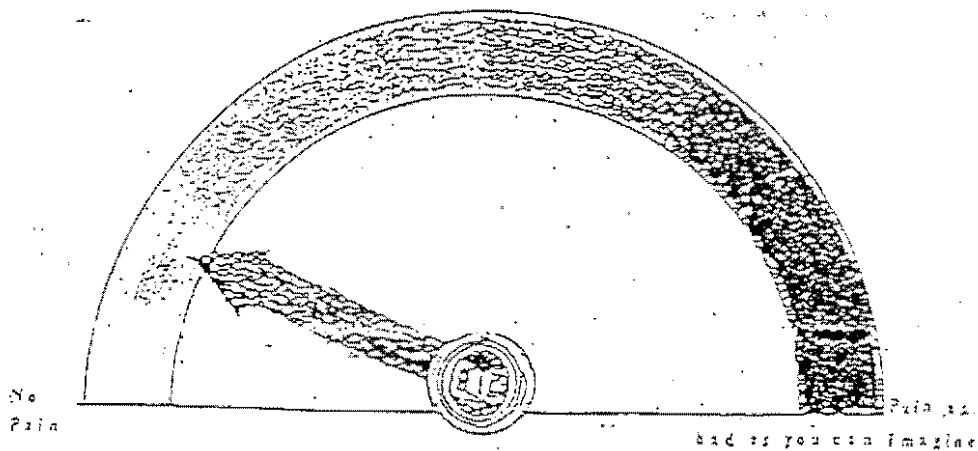
5. Indicate on this diagram where your pain occurs by shading the affected area. Label the drawing with "S" for pain near the surface of your body or with "D" for pain that is deeper. Also, indicate where your PRIMARY pain is located.



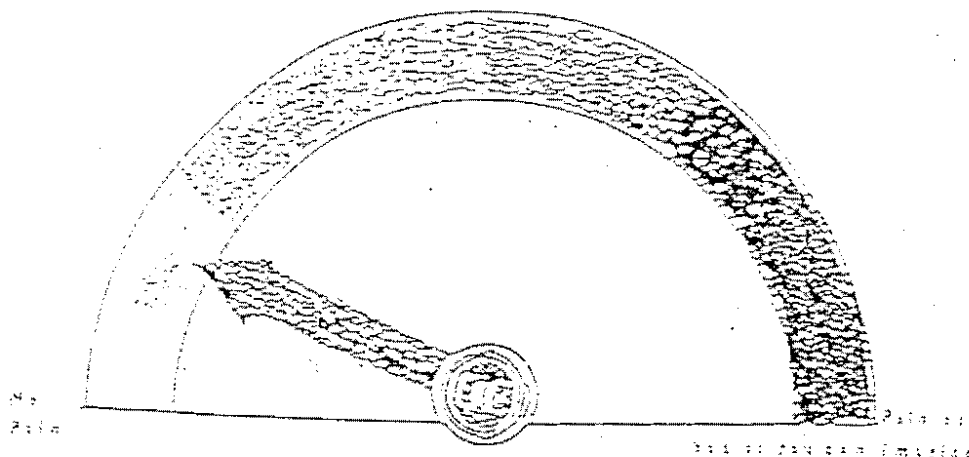
6. Please rate your pain by placing the pointer in the position that best indicates your pain at its worst in the last month. (Placing the pointer in the deep red area would indicate pain so severe as to prohibit all activity; the worst pain you can imagine).



7. Please rate your pain by placing the pointer in the position that best indicates your pain at its average. (Placing the pointer in the deep red area would indicate pain so severe as to prohibit all activity; the worst pain you can imagine).

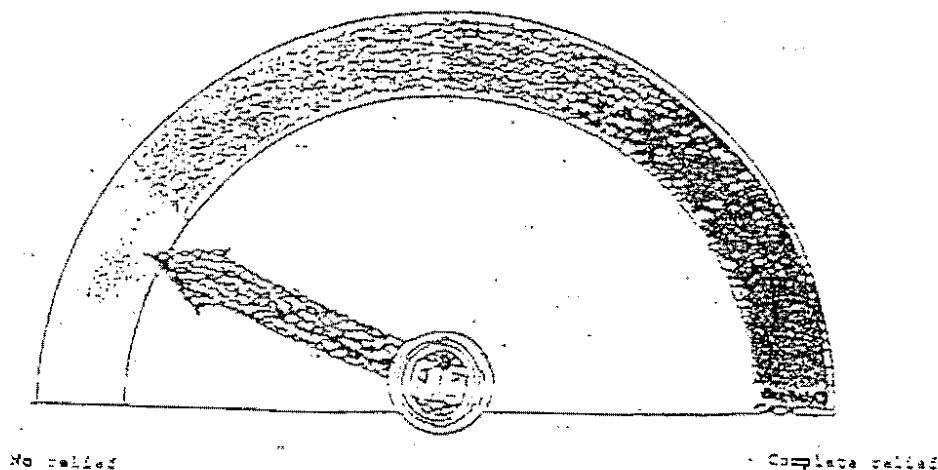


8. Please rate your pain by placing the pointer in the position that best indicates your pain right now.



9. What treatment or medications are you receiving for pain?

10. How much relief do pain treatments or medication provide? Please place the pointer in the position that best indicates how much relief you receive. Placing the pointer in the white area would indicate no relief and placing the pointer in the light blue area would indicate average relief, and in the deep blue area would indicate complete relief).



11. What do YOU think is the cause of your pain?

12. Suppose you were telling someone how your pain feels.
What words would you use to describe the pain?

13. During the past week how much did the state of your health, including any pain, interfere with the following:

- 0 Not at all
1 A little bit
2 Moderately
3 Quite a bit
4 Extremely

Mood

Relations with other people

Walking ability

Sleep

Normal work (includes both work outside the
home and housework)

Enjoyment of life

Other (Specify) _____

14. How long has it been since you learned your diagnosis?

_____ months?

Authorization : I, _____ have read the description of the "Brief Pain Questionnaire" study and decide to participate in the research project described here. I understand there is a possibility I might be contacted in the future about this but that I am free to refuse any further participation if I wish.

.....
PATIENT SIGNATURE

.....
DATE

.....
SIGNATURE OF INTERVIEWER

.....
DATE

Principal Investigator: E M Q Mokhuane
Department of Clinical Psychology
Box 110
MEDUNSA
0204

APENDIX D

Wisconsin Brief Pain Questionnaire (WBPQ) (Setswana and Northern Sotho)

Molwetse yo rategang

Molwetsi yo a rategago

RE KOPA GORE O TSEYE METSOTSWANA E SE MEKAE GO BUISA LE GO ARABA DIPOTSO TSE DI LATELANG. RE KA ITUMELLA DIKARABO TSA GAGO, LE FA O SENA DITLHABI TSE DI GO TSHWERENG. FA SA KA O SEKILE WA NNA LE DITLHABI KGWEDI E E FETILENG, O TLA TSHWANELWA KE GO ARABA DIPOTSO TSE 4 TSA PELE FELA/358

RE KGOPELA GORE O TSEYE METSOTSWANA E SE MEKAE GO BALA LE GO ARABA DIPOTSISO TSE DI LATELAGO. RE KA THABELA DIKARABO TSA GAGO LE GE O SENA MAHLABA AO A GO SWEREGO. GE O SAKA WA BA LE MAHLABA KGWEDI YE E FETILEGO, O TLA SWANELA KE GO ARABA DIPOTSISO TSE 4 TSA MATHOMO FELA.

Re tsamaisa tsa thuto ya ditlhabi, matlhoko le kalafo ya tsona. Re ka itumelela tirisano mmogo, ka ge re ikemiseditse go bona kitso ka ditlhabi le go kgona go laola phodiso ya yona go ya ka molwetse/

Re sepetsa tsa thuto ya dihlabi, mahloko le kalafo ya tsona. Re ka itumelela tshumisano-mmogo ka ge re ikemiseditse go hwetsa tsebo ka mahlaba, le go kgona go laola kalafo ya yona go ya ka molwetsi.

Ge o dumela thuto e e tlhalosiwang mo, re ka itumella ge o ka
 saena leina la gago ko letlakaleng la bofelo/
 Ge o dumelela thuto ye e hlalosgago mo, re ka thaba ge o ka
 tsikitla leina la gago letlakaleng la mafelelo.

KA KOPO, EFA BOPAKI BO BO LATELANG/
 REA KGOPELA, EFA BOPAKI BO BO LATELAGO

LEINA LA MOLWETSE/
 LEINA LA MOLWETSI : _____

MENGWAGA : _____

TSATSI LA TLHAGO/
 TSATSI LA MATSWALO : _____

TSATSI LA TLHATLHOBO/
 TSATSI LA HLAHLOBYO : _____

NOMORO YA KARATA YA SEPETLELE/
 NOMORO YA KARATA YA SEPETLELE : _____

MAEMO A TSA LENYALO/
 MAEMO A TSA LENYALO : _____

GE O KILE WA NYALWA : _____

GE O NYETSWE/
 GE O NYETSWE : _____

GE LE TLHALANE/
 GE LE HLALANE : _____

MOTLHOLAGADI/
 MOHLOLOGADI/ : _____

GE LE KGAOGANE : _____

THUTO : _____

TIRO/
 MOSOMO : _____

(ge o sa dire, re bolelle ka tiro ya gago ya pele)/
 (ge o sa some re tsebise ka mosomo wa gago wa pele)

TIRO YA MOSADI/MONNA
MOSOMO WA MOSADI/MONNA : _____

PALO YA BANA : _____

PALO YA BAO O BA FEPANG/
PALO YA BAO O BA FEPAGO : _____

A O KILE WA ETELA SEPETLELE KGOTSA WA YA NGAKEG MO DIKGWEDING
TSE 12 TSE DI FETILENG/
A O KILE WA ETELA SEPETLELE GOBA WA YA NGAKEG MO DIKGWEDING
TSE 12 TSE DI FETILEGO : _____

O ROBETSE LENG LA BOFELO SEPETLELE KGOTSA WA YA NGAKEG MO
DIKGWEDING TSE 12 TSE DI FETILENG/
O ROBETSE NENG SEPETLELE GOBA WA YA NGAKEG MO DIKGWEDING TSE
12 TSE DI FETILEGO : _____

O ROBETSE LENG LA BOFELO SEPETLELE, E FA MATSATSI/
O ROBETSE NENG LA BOFELO SEPETLELE, E FA MATSATSI: _____

BUA GORE O NE O TSHWERWE KE BOLWETSE BO BOFENG, O BE O FE LE
MAINA A DITLHARE LE DIPILISI TSE O NENG O DI NWA/
BOLELA GORE O BE O SWERE KE BOLWETSE BOFE GOMME O FE LE MAINA
A DIHLARE LE DIPILISI TSE O BEGO O DI NWA

A O KILE WA YA KALAFONG YA GO SEGIWA/
A O KILE WA YA KALAFONG YA GO SEGWA: _____

A O KILE WA ROBATSWA SEPETLELE KA LEBAKA LA BOLWETSE BA
TLHOGO/
A O KILE WA ROBATSWA SEPETLELA KA BAKA LA BOLWETSE BJA HLOGO

BUA GORE ONE O TSHWERWE KE BOLWETSE BOFE BA TLHOGO/
BOLELA GORE OBE O SWERWE KE BOLWETSE BOFE BJA HLOGO: _____

LEBELLA MAKWALO A SEPETLELE/
LEBELELA MANGWALO A SEPETLELA: _____

BUA LE BA LOSIKA/
BOLELA LE BA MELOKO: _____

BOTSISA GORE MOLWETSE O KILE A LLA KA DIHLABI MO MMELENG/
 BOTSISA GORE MOLWETSE O KILE A GONONWA KA DIHLABI MO MMELENG :

A BATSWADI BA GAGO BA SA PHELA SENTLE MO
 MMELENG: _____

A BATSWADI BA GAGO BA SA PHELA GANTLE MMELENG
 NA: _____

BOLELA GORE LESO LA BATSWADI LE BAKILWE KE ENG/
 BOLELA GORE LEHU LA BATSWADI LE BAKILWE KE ENG: _____

MO DINGWAGENG TSE PEDI TSE DI FETILEGO GO KILE GWA HLOKOFALA
 BATHO BA BA KAE BA LAPA LA GAGO: _____

MO LAPENG LA GAGO A GO KILE GWA BA LE OO A LWALANG A BA A
 ROBALA SEPETLELE MO DINGWAGENG TSE PEDI TSE DI FETILENG/
 MO LAPENG LA GAGO A GO KILE GWA BA LE YO A LWALAGO A BA A
 ROBALA SEPETLELA MO DINGWAGENG TSE PEDI TSE DI FITILEGO: _____

1. Fa o tlo simolla go lwala, a mme ditlhabi e ne ele
 tse dingwe tsa dilo tseo di neng di go tlhobaetsa?/

Ge o tlo thoma go lwala, naa dihlabi e be e le tse
 dingwe tse di bego di go hlobaetsa?

(a) Ee Aowa
 Nyaa

Ge o arabile Ee ka moo godimo, lekola mehlala ye :-

Setlhabi ke sona se nthome tseng ngakeng/
 Sehlabi ke sona sa go nthomela ngakeng

Setlhabi se ne se le teng, feela ka se ye go
 bona ngaka
 Sehlabi se be se le gona, feela ka se ye
 go bona ngaka

2. A, o kile wa nna le ditlhabi ka lebaka la bolwetse bo bo go tshwereng jaanong/

A o kile wa ba le mahlabi ka baka la bolwetse bjo bo go swerego byale:

Ee Aowa Ga ke na le nnete
Nyaa

3. O kile wa bona kalafo ya go segiwa ka legare/?
(Karo)

Nkile wa hwetsa kalafo ya go segwa ka legare? (Karo)

Ee Aowa
Myaa

Mo botshelong bontsi ba rona bo na le ditlhabi ga ngwe le gape (Jaaka go opiwa ke tlhogo e tshesane, go thinyega, le go opelwa ke leino).

4. Mo bophelong, bontshi bja rena bo ba le dihlabi kgafetsa-kgafetsa. (Bjale ka go rengwa ke hlogo ye sesane, go thinyega le go thunyetswa ke leino). Re rata go tseba ge o kile wa ba le dihlabi tse dingwe ka ntle le tsa mehleng, mo kgwedding ye e fitilego.

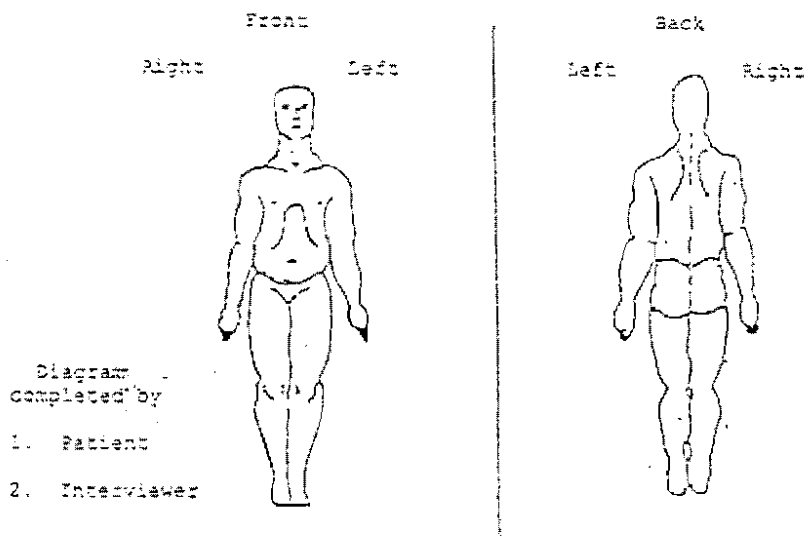
Ee Aowa

GE O DUMELLANA LE POTSO E KWA GODIMO, RE KOPA GORE O TSWELE PELE KA GO ARABA POTSO YA BOTLHANO, GO FITLHA BOFELONG BA DIPOTSO. SAENA LEBITSO MO BOFELONG/

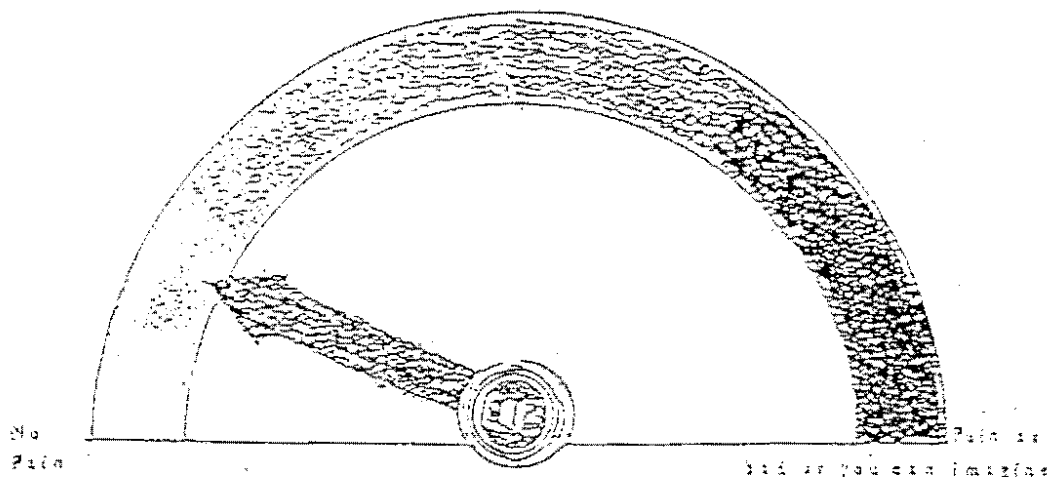
GE O DUMELELANA LE POTSIYO YA KA GODIMO, RE KGOPELA GORE O TSWELE PELE KA GO ARABA POTSIYO YA BOHLANO, GO FIHLA BOFELONG BYA DIPOTSIYO. O SAENE LEBITSO LA GAGO. BOFELONG BA DIPOTSIYO.

5. Mo setshwantshong se se latelang, bontsha mo ditlhabi di neng di le teng ka metlha: Dirisa matshwao a: "S" go supa botlhoko bo bo sa tsenellang mo mading: "D" go supa botlhoko bo bo tseneletseng mo mading/

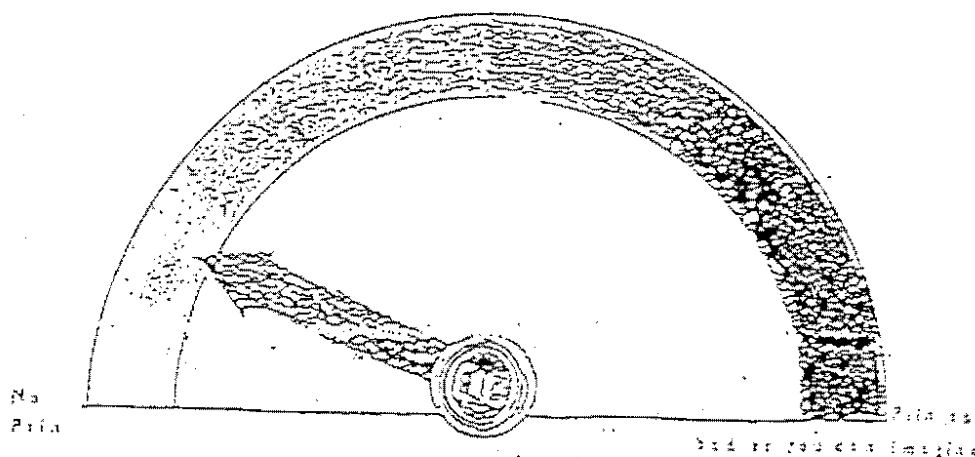
Mo seswantshong se se latelago, laetsa moo dihlabi di be go di le gona ka mehla : Dirisa maswao a : "S" go laetsa bohloko bjoo bo sa tsenelelago mo mading: "D" go laetsa bohloko bjoo bo tseneletsego mading.



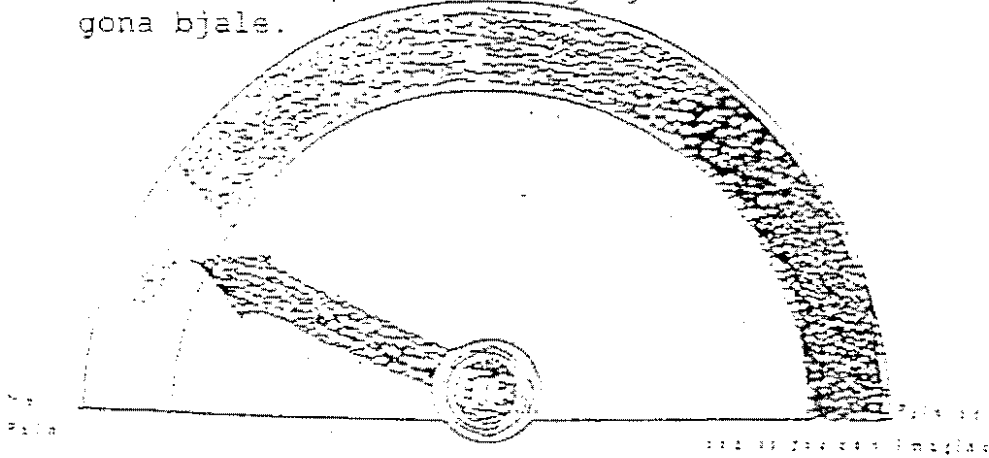
6. Leka go bontsha ditlhabi tsa gago ka go supa ka letshwao moo le tla go bontshang ka moo ditlhabi tsa gago di ileng tsa gakala go feta tekanyo kgweding e e fetileng/
Leka go hlalosa dihlabi tsa gago ka go supa ka lenakana le, moo le tlogo laetsa ka fawo dithabi tsa gago di ilego tsa poka go feta tekanyo kgweding ya go feta.



7. Leka go beya letshwao moo le tla go tlhalosang gore ditlhabi tsa gago di ne di le mo magareng mo kgweding e e fetileng/
Leka go bea lenakana le moo le tlogo go hlalosa gore mahlaba a gago a be a le mo magareng mo kgweding ya go feta.

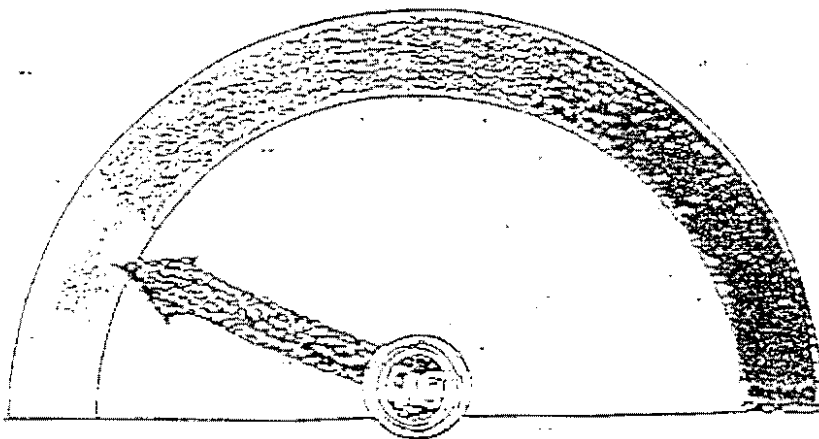


8. Leka go bontsha ditlhabi tsa gago ka go baya letshwao, moo le tla bontshang ditlhabi tsa gago gona byanong/Leka go hlaola dihlabi tsa gago ka go bea lenaka le, moo le tlogo go laetsa mahlabi a gago gona bjale.



9. Ke kalafo kgotsa meriana efe eo o e fumanang go okobatsa ditlhabi?/
Ke kalafo goba dihlare dife tseo o dihwetsago go okobatsa dihlabi?
-
-
-

10. Bontsha ka letshwao, ka fao kalafo, kgotsa meriana eo o e fumanang de okobatsang ditlhabi ka teng/
Bontsha ka lenakana le, ka fao kalafo, goba dihlare tseo o di hwetsago di okobatsago dihlabi ka gona.



11. Tlhalosa gore mahlaba a gago a bakwa ke eng.
Dihlabi di bakwa ke eng.
-

12. Tsaya gore o bolelela yo mongwe ka fao o tshwereng ke ditlhabi ka teng. Ke mantswe a fe ao o ka a dirisang go tlhalosa ditlhabi tseo/
Tsea gore o botsa yo mongwe ka fao o swerego ke dihlabi ka gona. Ke mantswe a fe ao o ka a somisago go hlalosa dihlabi tseo.
-

13. Mo bekang e e fitileng, go itekanela ga gago mo mmeleng le ona matlhaba ao a go tshwenyang a go tswetse ga kaakang. Dirisa metlhala e e latelang/
Mo bekang ye e fitilego, go itekanela ga gago mo mmeleng le wona mahlaba ao a go tshwenyago a go tshwentse ga kaakang. Somisa mehlala ye e latelago:

- 0 Ga a ise a ntshwenye/Ga senke a ntshwenye
1 Go sennyana/Ga nnyane
2 Magareng
3 Ga ntsinyana/Ga ntshinyana
4 Go feta tekanyo

Bontsha ka go dira sefapano mo masakaneng a, go bontsha go re bolwetse bo go tshwentse ga kanakang/
Bontsha ka go dira sefapano mo masakaneng a, go bontsha go re bolwetsi bo go tshwentse ga kaakang.

Mekgweng ya gago

Botsalano le ba bangwe/Segwere le ba bangwe

- Motsomao wa gago/Mosepelo wa gago
- Borokong
- Mesebetsing ya gago ya ka metlha (kamo gae le kwa ntle)
Mesomong ya gago ya ka mehla (ka gae le ka ntle)
- Go ja nala/ Boiketlong
- Tlhalosa
Le tse dingwe (hlalosa) _____

14. Ke lebaka le le kaakang ontse o itse ka bolwetse ba gago? Dikgwedi/
Ke lebaka le le kaakang o ntse o tseba ka bolwetse ba gago? Dikgwedi _____

TUMELELANO : Nna, _____

ke badile hlaloso ya thuto ya "Dipotsiswana tsa mahlaba ka bokopana", bjale ke ikemisetsa go somisana mmogo le badira dinyakisiso. Ke ya kwisisa gore go na le kgonagalo ya gore nka salwa morago ge matsatsi a ntse a eya, ka yona kanelalo ye: feela ke na le yona toka ya go ka gana go somisana mmogo le bona beng ba nyakisiso ge ke nyaka. Mo letlakaleng la bofelo o tla feleletsa ka go tlatsa leina la gago, letsatsi, kgwedi le ngwaga.

 SAENA LEINA LA GAGO MO/
 TSIKITLA LEINA LA GAGO MO

 LETSATSI, KGWEDI LE NGWAGA/
 LETSATSI, KGWEDI LE NGWAGA

 MOBATLISISI O TLA SAENA LEINA LA GAGWE MO/
 MONYAKISISI O TSIKITLA LEINA LA GAGWE MO

Monyakisisi yo mogolo

E M Q Mokhuane
 Department of Clinical Psychology
 P.O. Box 110
 MEDUNSA
 0204

APPENDIX E

Visual Analogue Scale (VAS)

NAME/LEBITSO/LEINA: -----

AGE/MENGWAGA :-----

SEX/MONG:-----

MARITAL STATUS/MAEMO A TSA LENYALO:-----

WARD/PHAPHUSI:-----

FILE NUMBER/NOMORO YA FAELE:-----

DIAGNOSIS/DITLHAHLOBO TSA BOLWETSE:-----

DATE OF INTERVIEW/LETSATSI LA THLAHLOBO:-----

INTERVIEWER/MOBATLISISI/MONYAKISISI: -----

Dear Patient

The visual analogue is a line, the length of which is taken to represent the continuum of your pain experience. You are requested to mark the line at a point corresponding to the severity of your pain. The extreme left side of the line represents no pain and the extreme right side represents unbearable pain.

NO PAIN _____ PAIN AS BAD
AS YOU CAN
IMAGINE

APPENDIX F

Profile of Mood States

Below is a list of words that describe feelings people have. Please read each one carefully. Then CIRCLE one number to the right which best describes HOW YOU HAVE BEEN FEELING DURING THE PAST WEEK INCLUDING TODAY.

The numbers refer to these phrases:

0 = Not at all
1 = A little
2 = Moderately
3 = Quite a bit
4 = Extremely

Mafoko a latelang a tihlosa maikutlo a batho. Tswetswe a buise ka tlhokomelo. Fa o fetsa sekeletsa palo e lenngwe ka mo mojeng e tihlosang sentle ka moo o ikutlwileng ka teng beke e fetileng gammogo le kajeno.

Dipalo di kaya jaana

0 = Ga go na sepe
1 = Go le go nnye
2 = Go lekanetse
3 = Ga nnyane
4 = Thatathata/ Go fetisisa

Mantswe a latelago ka fase a hlalosa maikutlo a batho. Bala lentswe le lengwe le le lengwe gabotse. Dira lesakana nomorong yeo o bonago gore e hlalosa maikutlo a gago lehono le beke e fetilego.

Dinomoro e hlalosa ka mo go latelago

0 = Ga go selo
1 = Gannyennyane
2 = Ka go lekanela
3 = Gannyane
4 = Kakudu

1. Friendly, well disposed, warm hearted/go nna le botsalano, tsalano/go ba le botho	0	1	2	3	4
2. Tense, strained/gagamala, gamarega/go se lokologe	0	1	2	3	4
3. Angry, extremely displeased/tenego/galefa/go befelwa	0	1	2	3	4
4. Worn out, dog tired/go lapa go go feteletseng, tetego/go tetega	0	1	2	3	4
5. Unhappy, joyless, dispirited/go se itumele/go hloka lethabo	0	1	2	3	4
6. Clear-headed, clear thinking/go itse se o se batlang/go nagana gabotse	0	1	2	3	4
7. Lively, alive, bright/go ba le bophelo/gonna le bephelo	0	1	2	3	4
8. Confused, muddled up/etsaetsega, go kopakopana	0	1	2	3	4
9. Sorry for things done, responsible for a wrong/go itshwaya qoso/go itshwabela	0	1	2	3	4
10. Shaky, trembling/go roromela, go tlhoka maikatlapelo	0	1	2	3	4
11. Listless, trembling, sluggish, knocked out/korobetse, go kgobega marapo/go nyema mooko, go tapa	0	1	2	3	4
12. Peeved, irritable/go felafela pelo	0	1	2	3	4
13. Considerate, thoughtful towards others/go nna le kutlwisiso/go setsa	0	1	2	3	4
14. Sad, unhappy feeling/hutsafala/go nyama	0	1	2	3	4
15. Active, diligent/matlhagatlhaga/go ba le mafolofolo	0	1	2	3	4
16. On edge/go batla go thubega, losi/go gagamala	0	1	2	3	4
17. Grouchy, grumpy, discontent/mongongoregi/go belaela	0	1	2	3	4
18. Blue, depressed/moya o kwa tlase/go se tsoge gabotse					
19. Energetic, tireless, zealous/go tlala botshelo/ go tlala boselo	0	1	2	3	4
20. Panicky, alarmed/tlalewa/go tlala letshogo	0	1	2	3	4
21. Hopeless, without trust, incompetent/go itlhoboga/go hloka tshepho	0	1	2	3	4
22. Relaxed, at ease/go phuthologa/ge o kwa o lokologile	0	1	2	3	4
23. Unworthy/go inyatsa	0	1	2	3	4

24. Spiteful, malicious/go sotla, go bontsha lenyatso/go sinyalala/go nyatsa	0	1	2	3	4
25. Sympathetic, compassionate/pelotlhomogi, kutlwelobotlhoko go hlomogela pelo	0	1	2	3	4
26. Uneasy, disturbed/go se iketle	0	1	2	3	4
27. Restless, unsettled/go se nnisege/go emaema	0	1	2	3	4
28. Unable to concentrate, unable to gather one's thoughts/go palewa ke go reetsa/go balabala monaganong	0	1	2	3	4
29. Fatigued, dead tired/go lapa thata/go lapa	0	1	2	3	4
30. Helpful, useful/go nna le thuso/go ba le thuso	0	1	2	3	4
31. Annoyed, maddened/go ngala/go selekega	0	1	2	3	4
32. Discouraged, disheartened/go kgobega marapo/go nyema moko	0	1	2	3	4
33. Resentful, displeased/go se kgatlege/go senyake selo	0	1	2	3	4
34. Nervous, highly strung/go fafamoga/go ema ema	0	1	2	3	4
35. Lonely, companionless/go jewa ke bodutu/go ba bodutung	0	1	2	3	4
36. Miserable, unhappy/go ferekana, go tshewenyega maikutlo/go hlaka hlakana mogopolong	0	1	2	3	4
37. Muddled, mixed up/dilo fa di dubakane, di le marara/go rarakana	0	1	2	3	4
38. Cheerful, pleasant/go ela sefatlhego/go thaba	0	1	2	3	4
39. Bitter/go tshwara sekgopi/go ba le sekgupi	0	1	2	3	4
40. Exhausted, tired out, depleted/go tswa moko mo marapong/go tapa	0	1	2	3	4
41. Anxious, apprehensive, worried/tlhobaediwa, tlhobaela/go hlobaetsa	0	1	2	3	4
42. Ready to fight, hostile, offensive/go ipaakanyetsa go lwa, go ikwetlisa/go itukisetsa go lwa	0	1	2	3	4
43. Good natured, kind/go nna le botho/go ba le tlhago e botse	0	1	2	3	4
44. Gloomy, down hearted, morose/go tlhafa/go hloka lethabo ka baka la go nyama	0	1	2	3	4
45. Desperate, desiring, needing very much/tsholofelo/go nyaka selo ka kudu	0	1	2	3	4

46. Sluggish, inert, slow moving/go ikgoga fela, go lepologa	0	1	2	3	4
47. Rebellious, open resistance to control/moferefere/go ngangela thoko, senganka	0	1	2	3	4
48. Helpless, defenseless/go nyera pelo, go nyema moko/go fellwa ke matla	0	1	2	3	4
49. Weary, drained/go lapisywa/go lapisa	0	1	2	3	4
50. Bewildered, puzzled/akabala/go makala	0	1	2	3	4
51. Alert, attentive/go nna ntlha tsebe/go fahloga	0	1	2	3	4
52. Deceived, misled/tsietsa, iphora/go fora	0	1	2	3	4
53. Furious, raging/sakgala, go kwata thata/go befelwa	0	1	2	3	4
54. Efficient, capable/o a kgona, o na le bokgoni/bokgoni, ho kgona	0	1	2	3	4
55. Trusting, reliable/go tshepagala/tshepega	0	1	2	3	4
56. Full of pep, very active/go ikutlwa o na le botshelo go baa le matlhagatlhaga/matsato	0	1	2	3	4
57. Bad tempered, hot headedness/pelo e e maswe, sebetwane/go tlala pelo	0	1	2	3	4
58. Worthless, useless/ga o se na mosola/go hloka mohola	0	1	2	3	4
59. Forgetful, fail to remember, dreamy/go lebala/go lebala ka pele	0	1	2	3	4
60. Carefree, free from responsibility/go sa kgatlege fa dilo di diragala/go se hlokomele	0	1	2	3	4
61. Terrified, severely frightened/go tshoga thata, tshositsiwe	0	1	2	3	4
62. Guilty, wrong doing/go ipona molato/go itshetshengwa	0	1	2	3	4
63. Vigorous, full of energy, endurance/go ba le matla, go tlala matla	0	1	2	3	4
64. Uncertain about things, not sure about things/go se nne le bonnete ba dilo/go se kwisise	0	1	2	3	4
65. Bushed, tired out, bewildered/go lapa lapilapi	0	1	2	3	4

APPENDIX G

Information Given on the Multidimensional View on Pain

Pain (that is what usually hurts) is normally thought to be an interaction of three components: the sensory component, (body organs) motivational affective component (emotions, feelings) and the cognitive evaluative component (intellect, the idea of knowing).

The sensory component may be produced by an injurious stimulus like the stubbing of the toe, a cut on the skin, a burn on any part of the body, a stone in the bladder, an infection of the abdomen, womb or ear, or the banging of the head against the wall, and our physical reaction to these incidents or stimuli.

Pain may become overwhelming, unpleasant and if it is severe, it may disrupt our behaviour and thinking processes. The usual reaction of the individual in pain is to seek something aimed at stopping the pain as quickly as possible. This aspect of behaviour and reaction constitutes the second component termed the motivational-affective dimension.

Our thoughts always play some part in what we do. People do remember what happened to them in the past and do anticipate what may happen in future. This aspect constitutes the cognitive evaluative dimension. What takes place in our surroundings (environment) interlocks with our thinking, behaviour, and our unique individual differences to determine our actions, thoughts, and feelings and the form of physical and mental discomfort they generate.

Our intellect or the idea of knowing is able to act selectively either on the sensory (body parts) the affective (feelings emotions) components.

When one is hurt physically, the pain is identified in terms of its location (e.g., on the leg, chest, arm), and in terms of its physical properties (e.g., whether it is stabbing, aching, pounding, crampy etc.), and is evaluated in terms of our past experience, and what pain means to us at any given moment, whether we find it to be life threatening or whether we hope it will subside. What pain signifies will make a great difference in how it is perceived. Hence pain may elicit anxiety, nervousness, discomfort, and it may make us worried and thereby becoming unbearable. Our breathing may become shallow and irregular.

The consequences may consist of disordered thoughts. The behaviour-actions may consist of the following: crying, crouching, and tensing of the muscles, lying down, being unable to act, sitting down or pacing the floor. On the other hand positive thoughts accompanied by feelings labelled calm, happy, content, excitement, and the motivation to get well can make pain seem less than what it is.

The consequences arising from these positive thoughts may consist of the following: rhythmical breathing, ordered thoughts, clear thinking, feelings of calmness, well being, and composure. The behaviour-actions could be that the person conducts pain management techniques such as relaxation.

Here is a useful way of understanding and using the model that I have just given. Our contexts or environments which are internal or external (in our case cancer pain is perceived as

an internal context) are usually associated with our thoughts and feelings through a complex process.

If we feel anxious our bodies may be tense, tenseness around the injured or diseased muscles makes the surrounding muscles also tense with the result that the pain becomes more severe.

Thus pain may begin with an injury or disease. A pain message from the site or diseased part is sent through a mechanism that works like a "gate to the brain" (Melzack & Dennis, 1978).

The brain then interprets this message with the result that the gate is partially or fully opened or closed determining the amount of pain that one can experience. Physical factors that open the gate are :

- (i) the extent of the injury,
- (ii) the readiness of the nervous system to send pain signals, and
- (iii) inappropriate activity level.

Emotional factors that open the gate are depression, anxiety, worry, tension, and anger. Cognitive or mental factors that open the gate are: focusing on pain, boredom due to minimal involvement in life activities, and negative or non-adaptive attitudes.

Physical factors that close the gate according to Turk et al. (1983) are: medication, stimulation of the area around the painful part, and appropriate activity level.

This involves doing appropriate exercises like walking and household chores. Emotional factors that close the gate are: emotional stability, that is, not being easily disturbed, and having positive feelings such as happiness, being hopeful, and optimistic.

Mental factors such as involvement in cognitive activities like reading, intense concentration, being able to divert one's attention away from disturbing stimuli and having adaptive or positive attitudes close the gate.

Having illustrated to you the model on pain we can now understand that cancer pain has a physical basis, its severity depends on how we think about ourselves and our circumstances and the demands that are being made on us by the disease or pain at any particular time. If we interpret these demands as overwhelming, rather than seeing them as a challenge, we are bound to feel helpless and the pain may become too strong for us to cope with. On the other hand, if we regard the strong pain sensation as a challenge causing a problem which has to be solved, then we are able to confront pain, to dispel negative thoughts and feelings, with the result that the action or behaviour that follows from this could be anyone of the following: taking a deep breath, swallowing medication, or telling yourself that you are fine the pain will pass, talking to someone about your family interests, hobbies, thinking about something to distract our attention from the pain. The point is that you will be aiming to maintain a positive attitude. Discouragement and anxiety may occur but these can be overcome by following what I will be teaching you at a later stage.

APPENDIX G

Information Given on the Multidimensional View of Pain
(Setswana)

Botlhoko gantsi bo naganwa e le tirisano ya mekgwa e meraro: kutlo ya dithwe tsa mmele, tlhotloetso ya maikutlo le tlhaloganyo/kakanyo (tlhaloganyo, monagano wa go itse).

Kutlo ya dithwe tsa mmele e ka tlhagisiwa ka mekgwa e e farologaneng, jaaka go gatiwa monwana wa leoto, tshego mo letlalong, go sha ga karolo nngwe ya mmele, matlapa mo senyeng tshwaetsego mo mpeng, popelo, tsebe, kgotsa go betsa tlhogo mo loboteng le tsibogelo ya rona mo ditiragalong tse di tshwanang le tsona.

Botlhoko bo ka tsietsa, bo ka sulafatsa, mme fa bo feteletse bo ka tlhakatlhakanya maitsholo le menagano. Gantsi tsibogelo ya motho mo botlhokong ke go batla se se ka bolayang botlhoko ka bonako jo bo ka kgonagalang. Ntlha e ya boitsholo le tsibogelo e akaretsa mokgwa wa bobedi e leng thotloetso ya maikutlo (motivational-affective dimension).

Menagano ya rona methlha e na le karolo mo go se re se dirang. Batho ba gopola e se ba diragaletseng mo nakong e e fetileng, ka jalo ba naganela kwa pele ka se ka diragalang.

Ntlha e e akaretsa mokgwa wa go tlhaloganya (cognitive evaluative dimension). Se se diragalang mo tikologong ya rona se amana le menagano ya rona, maitsholo a a tlhaolegileng a

botho jwa rona, go rotloetsa ditiro tsa rona, menagano le maikutlo a a sa iketlang.

Tlhaloganyo kgotsa mokgwa wa go itse di kgontsha go tlhaola kutlo (sensory) ya ditho tsa mmele mo maikutlong (feelings). Fa motho a utlwisitswe botlhoko mo mmeleng, botlhoko bo tlhaolwa ka sethwe se se amegileng (jaaka mo leotong, sefubeng, letsogong) le ka mokgwa wa kutlwiso botlhokong (jaaka, go tlhabiwa, go opelwa, go uba le go gagamala), gape go tshwantshiswa/lekanyetswa ka ditiragalo kgotsa maitemogelo a a fetileng, ka ga se bokao jwa botlhoko e leng sona mo go rona, mo lobakeng lo lo neetsweng, fa gongwe e le tshosetso mo bophelong kgotsa gongwe re solofela fa go tla okobala. Se bokao jwa botlhoko e leng sona se ka dira pharologanyo e kgolo ka mokgwa o bo utlwiwang ka gona. Ka ga jalo botlhoko bo ka tlhola letshogo (anxiety), go sa iketlang (nervousness), go sa phuthologang (discomfort) mme go ka tlhola go tshwenya maikutlo mo go feteletseng. Go hema ga moya go ka tla ka tsela e sa tlwaelegang. Fa go hemela ga moya go tlhakane le go galefa (anger) kemiso ya khemo e ka diragala.

Ditlamorago e ka nna go se nagane sentle. Ditiragalo tsa maitsholo di ka akaretsa tse di latelang: go lela, go menagana le go gagamala ga mesifa, go robala fatshe, go tlhoka go diragatsa, go dula fatshe kgotsa go tsama-tsamaya.

Ka fa go le lengwe, menagano e e phodileng, boitumelo, go repa, matlhagatlhaga le thotloetsego ya go fola e ka dira gore botlhoko bo tlhohofale go feta jaaka go ntse.

Ditlamorago tsa menagano e e ritibetseng di akaretsa tse di latelang :- khemo e e tlwaelegileng, menagano e e tlhapileng,

maikutlo a go ritibala, le go ikutlwa o repile. Ditiragatso tse tsa maitsholo di ka nna tsa diragatsa itshidilo ya mmele.

Fano go tla latela sekai sa go tlhalosa ditiragolo tseo go builweng katsona se se diragalang mo tikologong ya rona e kwa ntle garona kgotsa mo gare ga rona, se amana le menagano le maikutlo a rona ka tsela e raaraneng. Botlhoko jwa kankere re tla bo tsaya jaaka se se diragalang mo tikolojong e mo gare ga mmele wa motho.

Fa re na le letshogo, mmele wa rona o a gagamala, kgagamalo mo tikologong ya setho se se lemetseng e dira gore mesifa tse di gaufi le tsona di gagamale ka jalo botlhoko bo eketsege, bo gakale le go feta.

Ka jalo botlhoko bo ka simologa ka kgobalo kgotsa bolwetse. Molaetsa wa botlhoko go tswa mo karolong ya kgobalo kgotsa ya bolwetse o romelwa ka mokgwa wa go tshwana le kgoro ya go ya bobokong (gate to the brain) (Melzack & Dennis, 1978).

Boboko bo fetolela molaetsa o, mme se se dira gore kgoro e bulege go le gonnye kgotsa e bulege gotlhelele kgotsa e tswalege, mme ka tsela e kgoro e laola bolthoko jo bo utlwiwang ke motho.

Ditiragalo tsa mmele tse ka bulang kgoro ke tse:

- (i) boleng jwa kgobalo
- (ii) tshiamelo ya megala-tshika (nervous system) go tsamaisa molaetsa wa botlhoko
- (iii) ditiragalo tse di seng ka fa tlwaelong

Ditiragalo tsa maikutlo tse di bulang kgorong ke:

Maikutlo a kwa tlase kgotsa go hutsafala, letshogo, go tshwenyega maikutlo, kgagamalo le go kgalefo.

Ditiragalo tsa monagano tse di bulang kgoro ke :- go nagana ka botlhoko, bodutu ka ntlha ya go se tseye karolo mo ditiragalong tsa botshelo, le go tlhoka maitemogelo a go iphemela mo mathateng a botshelo kana go itshokela one.

Ditiragalo tsa mmele tse di tswalang kgoro go ya ka Turk, et al. 1983) ke: melemo/ditlhare, tsosoloso (stimulation) ya karolo e e botlhoko le tsamaiso e e lebaneng.

Se se akaretsa itshidillo jaaka go tsamaya le go dira tiro tsa legae. Ditiragalo tsa maikutlo tse di tswalang kgoro ke:-maikutlo a a ritibetseng a a sa tshikinyegeng bonolo, le go ikutlwa o itumetse, le go nna le tsholofelo.

Ditiragalo tsa monagano tse di akaretsang go buisa, kakanyo e e tseneletseng, go kgona go itlhokomolosa se se tshwenyang mo tikologong, le maikutlo a a tsepameng a tiragatso, tsone di tswala kgoro.

Sekai se se filweng fano sa botlhoko, se re lemogisa se se tlholang botlhoko jwa bolwetse jwa kankere. Bo amona le se se diragalang mo mmeleng, mme boteng jwa botlhoko bo tswa mo go reng re nagana jang ka borona le tlhotlheletso ya mabaka a a re amang ka ntlha ya bolwetse kgotsa botlhoko mo nakong e e neetsweng.

Fa re tihaloganya mabaka a jaaka a imelang, go na le go a bona jaaka a rotloetsang, re feletsa re ikutlwa re sena maatla ka jalo botlhoko bo nna bogolo mo go rona go ka bo kgotlelela.

Ka fa letsogong le lengwe, fa re bona botlhoko e le tlhotlheletso ya go rarabolla mathata a a tshwanetseng go rarabololwa, re ka kgona go emelana le botlhoko, le go nyatsa dikakanyo le maikutlo tse di bokoa, mo bofelong ditiro le maitsholo a a latelang e ka ditlamorago tsa maitsholo a tshwarang le a, e ka nna:

go goga moya, go nwa melemo/ditlhare, kgotsa go ipolelela gore go siame botlhoko bo tla feta, go buisana mongwe ka dikghatlhego tsa lapa la gago, tse o di dirang go itapolosa, go nagana ka sengwe go itlhokomolosa botlhoko.

Selo segolo-se-tona ke gore o tla bo o leka go dula o na le maikutlo a siameng.

Go nyema moko le letshogo di ka diragala mme tse di ka fenyiwa ka go sala morago se ke tla go se rutang fa moragonyana.

Pele ke go ruta ka go lepalepana le botlhoko ke rata go kopa gore lo dire itshidilo e e latelang (see Appendix H).

APPENDIX G

Information Given on the Multidimensional View on Pain
(Northern Sotho)

Botlhoko bo naganwa e le tshomisano ya mekgwa e meraro. Go kwa ga ditho tsa mmele, tlhotlhotletso ya dikwi tsa mmele le kwesiso goba monagano.

Go kwa ga ditho tsa mmele go ka tliswa ka mekgwa ya go fapana, go swana le go gatwa monwana wa leoto, go segwa letlalo, go swa mo mmeleng, maswikana ka mo senyeng, (bladder), ditwatsi ka mpeng, popelong goba tsebeng goba go thulantsha hlogo leboteng le maltshwaro a rena mo ditirong tsa mehuta ye.

Botlhoko bo ka go hlakahlakantsha, ba go nyamisa, gona ge botlile ka maatla bo ka sarakanya maltshwaro le monagano ya rena, Ga ntsi motho ge a ekwa botlhoko, o nyaka se ngwe sa go thibela botlhoko ka pejana. Tiragalo ye, en akaratsa mokgwa wa bobedi wa go bitswa (motivational-effective domain).

Menagano ya rena goba gona go tseba go nale karolo mo go se re se dirang.

Batho ba gopola se se ba diragetse go mo nakong e e fetilego, ke ka moo ba naganelago pele se se ka diragelago.

Ge motho a kwesitswe bothlhoko, bothlhoko bo kwala moo motho a gobetsego mmeleng (e.g., mo leotong, letsogong goba mafatlheng), go ya le gore o gobetse bjang, e.g., go ya gore e a hlaba, e bogale, e a opa goba e a nganga, bjalobjalo e bile bothlhoko bjo bo ya le gore kgale bo be bo le jwang, le gore nna re tseya bothlhoko jwang, gore bo siisa dinama tsa nmele goba bo tla okofala naa. Bothlhoko bjona bo yapa-fapane le gore motho o bo tsea bjang. Ke ka moo bothlhoko bo dirago gore motho a tshoge, a se dudisege, a se dudisege le gore a tshwenyega ka moo bothlhoko bo nape bo se ratege. Go hema go ga napile ga go ye gabotse.

Ditlamorago e ba ba tse di latelago. Go hema gabotse, go nagana gabotse ka mananeo, go iketla, go fola le go iketla. Le wona maitshwaro a ka fetoga motho a kgona go fola ge a somisa mekgwa ye ya go iketla.

Mokgwa wo mo botse wa go kwisisega ke wa go somisa tshwantsho (model) ye ke ga filego. Ditukologo tsa ka gare le ka ntle (mo go rena bothlhoko bja kankere bo tsewa bjale ka bothlhoko bja ka gare) gantshi di amana le dikakanyo le maiku tlo ka ditiragalo tse boima.

Ge re ekwa letshogo, mebele ya rena e a tsiboga, tsibogo mo motho a gobetsego, goba moo motho a fokolago go a tsiboga, ka tsela ye bothlhoko bo nape bo tle ka maatla. Ke ka moo bothlhoko bo thomago ka kgobalo goba bolwetsi. Molaetsa wa bothlhoko go tswa mo motho a gobetsego goba a lwalago, o remelwa bjokong (Melzack and Dennis (1978)).

Bjoko bo hlalosa molaetsa wo bjalo mojako wa bjoko o bulege gannyane goba kamoka, goba o tswalele go ya ka moo bohloko o bo kwago ka gona. Mabaka a go bula mojako ke.

- (i) Bogolo bja kgobalo.
- (ii) Go re dikwi tsona di ikemiseditse go go ka kang go romela melaetsa.
- (iii) Gore matlhatlha ke a ma kae.

Mabaka a go dira gore mojako o bulege ke maikutlo a fase, letshogo, matshwenyego, tsibogo le go befelwa. Mabaka a monagano (cognitive factors) a go bula mojako ke. Go bea monagano mo bohlokong, bodutu ka baka la go se dire selo mo bophelong le go se kgone go amogela mathata.

Mabaka a nmele (physical factors) a go dira gore mojako o tswalele, go ya ka Turk et al (1983) ke: ditlhare goba melemo, go tlhotlholo mo go lego bohloko le matlhatlha a itekanetsego.

Tse di akaretsa go itshidulla ka tshwanelo bjalo ka go sepela le go dira mesomo ya ka gae. Mabaka (emotional factors) a go tswalela mojako ke: go se tsea tseyege, go se garoge fela le go ba le maikutlo a go swana le lethabo, tshepo le go tsea dilo ga botse. Mabaka a monagano a go tswalela mojako a akaretsa go bala, go setsa, go tlosa tshetso ya motho mo dilong tsa go tsibusa le go ba le tshepo.

Bjale ka ge ke setse ke le bontshitse tshwantso ye ya go botlhoko, re ka kwisisa gore botlhoko bja kankere bo tswa mmeleng, boemo bja botlhoko bja gona bo ya le goe re nagana bjang, le maemo a tena le dinyakwa tse bolwetsi bo di nyakago go rena ka yona nako yeuwe.

Ga re hlalosa goba e tsea dinyakwa tse ka matlhatlha, go na le gore re di tseye bjalo ka teko, (challenge), re swanetse go kwa re hloka maatla, ka moo bohloko bo tla re feketsa ka maatla. Ka go le lengwe, ge re tsea botlhoko bjalo ka teko, ye e tlisago mathata a a swanetsego go ahlolwa, gona re kgona go lebantsha bohloko, ra kgona go tlosa dikakanyo tse di sa lokang monaganong le maikutlong, ka lebaka leo, ditlamorago di ka latela ka ye mengwe ya mekgwa e latelago: Go goga moya kudu, go metsa meriyana, goba go ipotsa gore o lokile/thabile bohloko bo tla fola, go bolela le yo mongwe ka tsa lapa la gago tse di rategago, dithaloko, le gona go nagana ka seo se tla dirago gore re se ke ra nagana ka bohloko. Tabakgolo ke gore o tla be a ikemise ditse go tsea dilo gabotse mo bophelong. Go nyama le go tshoga go ka ba gona, empa tse di ka feketsega ge o ka latela tseo ke tla go rutago ka nako ye latelago.

APPENDIX H

Assessment for the Purpose of Treatment

1. I would like you to tell me briefly how you see your pain, how it developed. I would also like you to tell me how you see your "pain now" in more detail.
2. I would like us to look at the situations or the sort of things which in your experience are likely to bring about pain. For example, the presence of others or absence of people, whether the presence of people make pain better or worse, which people make pain better? Does it make any difference if you are with someone? Does noise or quietness in your environment precipitate or bring about pain. What about places like home, the hospital, church, and supermarket. How do they affect your pain?
3. Are there any activities that bring about pain? For example, going up the stairs, walking uphill, doing household chores. What other activities do you avoid and why?
4. Which activities make pain better? Name them and tell me why you think they make your pain better.
5. A variety of moods or feelings like anxiety, that is, general uneasiness and discomfort, depression, namely feeling sad or unhappy, cheerfulness, and excitement, may affect your pain. I would like to find out about the feelings that bring on pain.

What feelings make pain better? What other sorts of moods make a difference to your pain?

6. Is physical tiredness affecting you? If so, how? Is tenseness also affecting you? How?
7. What visual images come to your mind when you have a twinge or pain in your stomach or lower abdomen? What happens to you?
8. What is it that you tell yourself when faced with pain?
9. What aspects of your life or yourself are not affected by pain, or are not strongly affected by pain?
10. Let's suppose for a moment that your pain is never going to improve. How would you want to set about coping with it?
11. If you no longer had pain, what difference would it make to your life?

APPENDIX H

Assessment for the Purpose of Treatment (Setswana)

1. Ke batla gore o mpolelele ka bokhutshwane gore setlhabi sa gago se jang? Se simolotse jang? Ke batla gore o mpolelele ka botlalo gore o utlwa kgotsa o bona setlhabi sa gago jang? Gona jaanong.
2. Ke batla gore o lebelele maemo kgotsa dilo tse di mo maitemogelong a gago, tse di ka tlisang setlhabi. Sekao, go nna teng ga batho ba bangwe, kgotsa go se nne teng ga batho, le gore batho fa ba le teng ba eteletsa setlhabi sa gago. Ke batho ba bafe ba ba dirang setlhabi sa gago botoka? A go na le pharologanyo fa o na le motho mongwe? A modumo kgotsa tidimalo mo tikologong ya gago e tsosolosa kgotsa e go tlišetsa setlhabi? Mafelo a a tshwanang le legae, bookelo kgotsa sepetlele, kereke le lebenkele ona? A dira gore setlhabi sa gago se nne jang?
3. A go na le ditiro tse di go tlišetsang setlhabi? Sekao, fa a namelela setepisi, mokonyana kgotsa thabana, fa o dira ditiro tsa mo lapeng. Ke ditiro dife tse o sa batleng go di dira, lebaka ke eng?
4. Ke ditiro dife tse di dirang setlhabi botoka? Fa maina a tsona mme o mpolelele gore ke eng o nagana gore di dira setlhabi sa gago botoka.
5. Maikutlo a a farologaneng a go tshwana le go tshoga, go sa phuthologa, le go sa iketla, mowa o wetseng, go tshwana le go utlwa botlhoko, kgotsa go sa itumele,

di ka tsosolosa setlhabi sa gago. Ke batla gore o batlisisa maikutlo a a go tlišetsang setlhabi. Ke maikutlo afe a a dirang setlhabi botoka? Ke maikutlo afe a a dirang pharologanyo mo setlhabing sa gago?

6. Mmele o o lapileng o na le go go tshwenya naa? Fa go ntse jalo, Jang? Go sa iketle go a go tshwenya? Jang?
7. Ke ponagalo efe e e tlang mo tlhaloganyong ya gago fa o na le setlhabi se se tseneletseng, se se tlileng ka tshoganyetso, kgotsa setlhabi mo maleng le mo tlase ga mohubu. Go diragala eng mo go wena?
8. Ke eng se o se ipolelelang fa o tlhasetswe ke setlhabi?
9. Ke karolo efe mo botshelong kgotsa mo mmeleng wa gago e e se keng e tlhaselwa ke setlhabi, kgotsa e e se keng e gatelelwa ke setlhabi.
10. A re re ka gongwe setlhabi se, sa gago ga se kitla se tokafala. O ka dira jang gore o bone o kgona go se kgotlhelela?
11. Fa e le gore ga o sa tlhole o na le setlhabi, ke pharologanyo efe, e o ka dirang mo bophelong ba gago.

APPENDIX H

Assessment for the purpose of treatment (Northern Sotho)

1. Ke nyaka gore o mpotse ka bokopana gore o bona bjang bohloko bja gago, bo thomile bjang. E bile ka nyaka gore o mpotse gore o bona bohloko bja gago bjang ka nako ye?
2. Ke nyaka gore o lebelele maemo goba dilo tseo di ka tlisago bohloko ge o somisa tsebo ya gago. Bjalo ka, go ba gona goba go se be gona ga batho ba bangwe, go re naa batho ba ka dira gore bohloko bo be kaone goba bo galefe, ke batho ba fe ba ba dinago gore bohloko bo be kaone? Naa go nale phapang ge o nale motho o mongwe? Naa lesata goba go homola go galefisa goba go tlisa bo tlisa bohloko? Mafelo a go swana le legae, bookelong, kereke le marekelong o na? A dira gore bohloko bja gago bo be bjang?
3. Naa go na le ditiro tse di tlisago bohloko? Bjalo ka go namela setepisi, go namela mmoto, go dira mesomo ya mo lapeng? Ke ditiro dife tse o sa di nyakego ka lebaka la eng?
4. Ke ditiro dife tse di dirago bohloko gore bo be kaone? Di bolele o mpotse gore ke ka lebaka la eng o nagana gore di go dira bokaone?
5. Maikutlo a go fapafapana a go swana le go tshoga, go se phuthologe, le go se kotle, moya wa fase, go se thabe goba go nyama, lethabo le go thakgala go ka tsosolosa

bohloko bja gago. Ke nyaka gore o nyakisise ka maikutlo a a tlisago bohloko bja gago. Ke maikutlo a fe a a kaonafatsago bohloko bja gago? Ke maikutlo a fe a a dirago phapang mo bohlokong bja gago?

6. Naa go lapa go a go tshwenya? Ge go le bjalo, ka mokgwa ofe? Naa tsibogo e a go tshwenya? Bjang?
7. Ke dipono dife tse di tlogo monaganong wa gago ge o nale sehlabi mo dimpeng goba ka fase ga mohubo? Go diragalang go wena?
8. Naa o ipotsa eng ge o lebane le bohloko?
9. Ke karolo efe mo bophelong goba mmeleng wa gago e e sa amego ke bohloko goba e sa gatelelego ke bohloko?
10. A re tseye gore bohloko bja gago bo ka se kaonefale. O ka dira bjang gore o bone o kgona go bo kgotlelela?
11. Ge bohloko bjo bo ka fola, naa phapang e ka ba e fe bophelong bja gago?

APPENDIX I

Progressive Muscle Relaxation Therapy

Rationale for Relaxation Training

I would like to recapitulate my talk with you about pain. You will remember that pain is usually accompanied by tensing of the body muscles surrounding the painful area with the result that we have an increase in pain. If you are tense there is a likelihood that you are also anxious. The anxiety can in turn lead to more pain sensation with the result that your pain feels more severe and your tension increases.

Thus pain leads to tension, leading to anxiety and more pain and leading to tension. You then have what is called pain tension circle. You can break the pain tension circle by learning to relax, by just letting go all the tension in your body with the result that the pain sensations actually become less.

I will be teaching you a broad range of skills or techniques on how to cope with pain. You can use them to resolve your difficulties with pain. You will in return indicate to me which skill suits you best.

I am going to teach you how to become relaxed. Finally I will request you to practice these skills so that I can see how good you are at managing your pain.

Before you proceed with relaxation exercises, it will be helpful to find a comfortable chair with both your feet firm

on the floor and your arms at your side; or lie on a bed or floor in a calm relaxed position. If you lie on the floor be sure you are lying on your back, your legs uncrossed and your arms at your side.

To begin with, I want you to close your eyes throughout the exercises. Just spend a moment scanning through your body. I want you to become aware of the sensations in your body. And as you scan through your arms and legs see if you can detect any sensations or feelings of tension. Just allow yourself to relax those regions of the body for a moment. Allow your breathing to become relaxed and calm. Throughout the training, the following phrases will be used to make you more relaxed and calm: "Notice the difference between tensing and relaxing your muscles. Notice the warm, soft feeling of relaxation. Notice how your muscles now feel, they are warm, heavy and relaxed in contrast to when you are tensing them". Raise your right hand if you cannot control your tension.

Steps in Relaxation

1. Take a deep breath and hold it (for about ten seconds). Hold it. Okay, let it out.
2. Now curl your toes together - as hard as you can. Tighter. Okay, relax. (Quiet ... silence for about 30 seconds).
3. Bend your feet backward so that your toes point downwards. Notice the tension. Now, relax. (Pause). Relax.

4. Now bend your feet forward so that your toes point towards your face. Bend them hard. Relax.
5. Maintaining this relaxation, raise both your legs (to about 45° angle). Now relax. (Notice that this further relaxes you.)
6. Now tense your buttocks by squeezing them together. Tighter. Hold it. Now, relax.
7. Pull your stomach muscles together as if someone is punching your tummy. Tighter. Breathe out slowly and relax.
8. Now extend your stomach muscles as if you were a Prize Fighter. Make your stomach hard. Relax. (You are becoming more and more relaxed.)
9. Imagine that there are weights pulling on all your muscles, making them flaccid and relaxed ... pulling your arms and body into the couch.
10. Now, search the lower part of your body and relax any part that is still tense.
First the feet and toe muscles. (Pause ... 3-5 sec.)
The legs region. (Pause ... 3-5 sec.) Your thighs .. relax any part which is tense. (Pause) Now the buttocks and stomach. Relax these. Becoming very relaxed.
11. Now take a deep breath and hold it. Now, exhale. Breathe all the air out, all of it out. Relax. (Notice the wondrous feeling of breathing again.)

12. Now arch your shoulders back. Hold it. Make sure that your arms are relaxed. Now relax.
13. Hunch your shoulders forward. Hold it, and make sure that you breathe normally and keep your arms relaxed. Okay, relax.
14. Now turn your head to the right and tense your neck. Hold it. Okay, relax and allow your head to come to its natural position.
15. Turn your head to the left and tense your neck. Relax and bring your head back again to its natural position.
16. Now, bend your head back slightly. Hold it. Okay, now bring your head back slowly to its natural position.
17. This time bring your head down almost to your chest. Hold it. Now relax and let your head come back to its natural resting position.
18. Now, open your mouth as much as possible. A little wider, okay, relax. (Mouth must be partly open at end).
19. Now tense your lips by closing your mouth. Okay, relax. (Notice the feeling of relaxation).
20. Put your tongue at the roof of your mouth. Press hard. (Pause). Relax and allow your tongue to come to a comfortable position in your mouth.

21. Now put your tongue at the bottom of your mouth. Press down hard. Relax and let your tongue come to a comfortable position in your mouth.
22. Now just lie (sit) there and relax. Try not to think of anything.
23. To control self-verbalisation, I want you to go through the motions of singing a high note - not aloud! Okay, start singing to yourself. Hold that note, and now relax.
24. Now sing a medium note and make your vocal cords tense again. Relax.
25. Now sing a low note and make your vocal cords tense again. Relax. (Your vocal apparatus should be relaxed now).
26. Now close your eyes. Squeeze them tight and breathe naturally. Notice the tension. Now relax. (Notice how the tension goes away when you relax).
27. Now, keep your eyes closed, keep your mouth slightly opened. Relax.
28. Open your eyes as much as possible. Hold it. Now, relax your eyes.
29. Now wrinkle your forehead as much as possible. Hold it. Relax.

30. Now hold your arms out and make a tight fist. Really tight. Feel the tension in your hands. I am going to count to three and when I say "three", I want you to drop your hands. One ... Two ... Three. Relax.
31. Raise your arms, and bend your fingers back the other way (towards your body). Now, drop your hands and relax.
32. Raise your arms again. Now drop them and relax.
33. Now, raise your arms again, but this time "flap" your hands around. Okay, relax again.
34. Raise your arms again. Now, relax.
35. Raise both your hands about half way above the couch (or arms of the chair), and breathe normally. Now, drop your hands to the couch (or down). Relax.
36. Raise your arms above the couch (chair) again and tense your biceps until they shake. Breathe normally, and keep your hands loose. Relax your hands. (Notice how you have a warm feeling of relaxation).
37. Now hold your arms out to your side and tense your biceps. Make sure that you breathe normally. Relax your arms.

38. This completes the formal relaxation procedure. Now explore your body from your feet up. Make sure that every muscle is relaxed. (Say slowly) first my toes, ...my feet, ... buttocks, ... stomach, ... shoulder, ... neck, face, ... eyes, ... and finally my forehead is relaxed. All should be relaxed now. (Quiet ... silence for about 10 seconds.). Just lie there and feel very relaxed, noticing the warmth of the relaxation. (Pause.). I would like you to stay this way for a minute, and then I am going to count to five.

When I reach five, I want you to open your eyes feeling very calm and refreshed. (Quiet ... silence for about one minute.) One ... feeling very calm; Two ... very calm and very refreshed; Three ... very refreshed; Four ... very calm, very relaxed, and refreshed. Five ... feeling exceedingly calm, relaxed and refreshed.

Adapted in part from Bernstein and Borkovec (1973) and Ross (1985a).

APPENDIX I

Progressive Muscle Relaxation Therapy (Setswana)

Rationale for Relaxation Training

Ke batla re ikgopotse ka puo e ke e buileng le wena ka peine. O tla gopola gore setlhabi ga ntsi se tsamaisana le go gagamatsa mesifa ya mmele e e dikologileng mo go nang le setlhabi teng, mo e leng gore go feletsa botlhoko jwa setlhabi bo oketsega. Fa o utlwa mesifa ya mmele e gagametse, go na le kgonagalo ya gore o tshogile. Letshogo le lona le ka feleletsa le dira gore botlhoko bo o bo utlwang jwa setlhabi bo oketsege mme le letshogo le feleletse le oketsegile.

Go raya gore setlhabi se baka go gagamala ga mmele, go feleletse go bakile letshogo le koketsego ya setlhabi, go feleletse o utlwa mmele o gagametse. Jaanong o na le se se bidiwang sekele ya kgagamalo ya mmele ya setlhabi. O ka kgona go lwantsha sekele e ka go ithuta go lapologa, ka go letlelela kgagamalo yotlhe e o e utlwang mo mmeleng go tsamaya ka maikaelelo a gore setlhabi se o se utlwang se tla fokotsega.

Ke tlile go go ruta mefuta e mentsi ya dithekeniki tsa go kgona go emelelana le setlhabi. O ka kgona go di dirisa go rarabolola mathata a gago a setlhabi. Kwa morago o tla nkaela gore ke thekeniki e feng e e go direlang go fetisa tse dingwe.

Ke tlile go go ruta go lapologa. Kwa bofelong ke tla go kopa gore o ikatise ka dithekeniki tse ke tla beng ke go rutile tsona gore ke tle ke bone gore o kgona go le kae go emelelana le setlhabi sa gago.

Pele ga o tswelela ka dithuto tsa go lapologa, go ka thusa fa o ka dula mo setilong se se tla go nnisang o lapologile, maoto a gago a kgome lefatshe, matsogo a gago a nne ka fa matlhakoreng. Fa go kgonega o ka robala mo bolaong kgotsa mo fatshe, o itheeditse e bile o lapologile. Fa o robala mo fatshe, dira gore o robale ka mokotla, maoto a gago a seka a palamana, mme matsogo a gago a nne ka fa matlhakoreng.

Sa ntlha, ke batla o tswalle matlho a gago mme o nne o ntse o a tswetse go fitlha re fetsa ka thuto e. Tsaya nakwana o itheeditse (mmele wa gago otlhe). Ke batla o reetse o be o lemoge maikutlo a o a utlwang ka mmele wa gago mme fa o ntso o reeditse, matsogo le maoto a gago, oona o ka utlwa e kare o gagametse. Fa o utlwa go na le dikarolo dingwe tse e ka reng di gagametse, leka go di lapolosa. Letlelela go hema ga gago ge e o iketla. Fa re ntse re tswelletse ka thuto e ya rona, ke tla dirisa mafoko a a latelang go go thusa go lapologa "utlwa pharologano mabapi le go gagamatsa le go lapolosa mesifa ya gago. Utlwa maikutlo a a bothito a a lapolosang a go iketla. Utlwa ka mokgwa o mesifa ya gago e utlwalang ka teng, e bothitho, e boima e bile e lapologile, go bontsha pharologano le fa ke e gagamaditse".

Tsholetsa letsogo la gago la moja fa osa kgone go emelelana le go gagamala ga mmele wa gago (tension).

Steps in Relaxation

1. Goga moya ka maatla, o o tshware (metsotswana e 10), nna o o tshwere. Jaanong o ka o ntsha.
2. Kopanya menwana ya gago ya maoto ka maatla. Thata. Go siame, o ka iketla (setu metsotswana e 30).
3. Kobela maoto a gago kwa morago gore menwana ya gago ya maoto e supe kwa tlase. Utlwa jaaka o gagametse mo dikarolong tseo. Jaanong o ka lapologa (Pause). Itapolose.
4. Jaanong kobela maoto a gago kwa pele gore menwana ya gago ya maoto e supe kwa sefatlhegong sa gago. A kobe ka maatla. Itapolose.
5. Go tshwarelela go lapologa go, koba maoto a gago go le go nnye (about 45° angle). Jaanong itapolose. (Tlhokomela gore go dira jaana go cketsa go lapologa ga gago).
6. Jaanong gagamatsa mesifa ya gago ya marago ka go e kopanya. Gagamatsa thata. Tshwara jalo. Jaanong o ka a itapolosa.
7. Goga mesifa ya gago ya mpa kwa gare, e nne e ka re motho o go otlala mo maleng. E goge thata. Hemela kwa ntle ka iketlo mme o itapolose.
8. Jaanong godisa mesifa ya gago ya dimpa. Dira gore mpa ya gago e nne thata. Itapolose. (Go lapologa ga gago go ntse go oketsega).

9. Tsaya gore go na le ditshipi tse di boima tse di gogelang mesifa ya gago kwa tlase, mme di dira gore mesifa ya gago e utlwale e le boima mme e lapologile, e ka re matsogo le mmele wa gago di samela mo setilong.

10. Jaanong leka go utlwa gore ke karolo e fe ya mmele wa gago go tloga mo lethekeng go ya kwa maotong e e sa ntseng e gagametse. Sa ntlha utlwelela mesifa ya dikgato le menwana ya maoto (Pause 3-5 sec).
Jaanong utlwelela mesifa ya maoto (Pause 3-5 sec).
Utlwelela mesifa ya dirope.....lapolosa karolo e o e utlwang e gagametse (Pause). Jaanong utlwelela mesifa ya marago le ya mpa. Lapolosa dikarolo tseo. O ikutlwa o lapologile.

11. Jaanong goga moya mme o o tshware. Jaanong hemela kwa ntle. O hemele moya otlhe kwa ntle. Itapolose.

12. Jaanong gogela magetla a gago kwa morago, a tshware jalo. Tlhokomela gore matsogo a gago a lapologile. Jaanong itapolose.

13. Gogela magetla a gago kwa pele, a tshware jalo. Tlhokomela gore o hemela ka tshwanelo le gore matsogo a lapologile. Go siame, jaanong itapolose.

14. Jaanong shebisa tlhogo ya gago kwa mojeng mme o gagamatse mesifa ya thamo. E tshware jalo. Go siame, itapolose mme o letlelele tlhogo ya gago go boela maamong a yona.

15. Shebisa tlhogo ya gago kwa molemeng mme o gagamatse mesifa ya thamo ya gago. Itapolose mme o busetse tlhogo ya gago kwa maemong a yona.
16. Jaanong kobela tlhogo ya gago kwa morago go le go nnye. E tshware jalo. Go siame, jaanong busetsa tlhogo ya gago kwa maemong a yona ka iketlo.
17. Mo nakong e, diga tlhogo ya gago e kare e tla kgoma mafatlha a gago. E tshware jalo. Jaanong busetsa tlhogo ya gago kwa maemong a yona mme o itapolose.
18. Jaanong bula molomo wa gago go fitlha mo o ka kgonang. O bule gape go le go nnye, go siame, itapolose (molomo o tshwanetse o be o bulegile go le gonnye kwa bofelong).
19. Jaanong gagamatsa dipounama ka go tswala molomo. Go siame, itapolose (utlwelela maikutlo a go itapolosa).
20. Baya loleme lwa gago mo magalagapeng. Le gatelele thata (Pause). Itapolose mme o letlelele loleme lwa gago lo boele maemong a lona.
21. Jaanong baya loleme lwa gago kwa botlaseng jwa legano. Le gatelele thata kwa tlase. Itapolose mme o letlelele loleme lwa gago lo boele maemong a lona.
22. Jaanong tswelala o ntse o robetse (dutse) moo mme o repe. Leka gore o se ke wa nagana ka sepe.

23. Go laola go buela ka mo gare, ke batla gore o leke go nagana ka go opela kwa godimo, fela o seka wa ntsha lentswe. Go siame, simolola jaanong go opelela ka mo gare. Tshwara kopelo eo jalo, jaanong itapolose.
24. Jaanong opela kopelo e e magareng, o dire gore mesifa ya gago ya kopelo e gagamale. Itapolose.
25. Jaanong opela kopelo e e kwa tlase, o dire gape gore mesifa ya gago ya kopelo e gagamale. Itapolose (mesifa ya gago ya kopelo e tshwanetse e be e lapologile jaanong).
26. Jaanong tswala matlho. A tswale ka matla mme o heme ka tlwaelo. Utlwelela go gagamala go. Jaanong itapolose (utlwa ka mokgwa o go gagamala go tsamayang ka teng fa o itapolosa).
27. Jaanong tswelela ka go tswala matlho, bula molomo wa gago go le go nnye. Itapolose.
28. Bula matlho a gago ka moo o ka kgonang. A tshware jalo. Jaanong repisa matlho a gago.
29. Jaanong sosobanya phatlha ya gago ka moo o ka kgonang. E tshware jalo. Itapolose.
30. Jaanong phuthulola matsogo a gago mme o fune diatla, o gagamatse diatla ka maatla a gago otlhe. Ke ya go bala go fitlha ka tharo, fa ke re "tharo", ke batla gore o tlogelele kgotsa o dige matsogo a gago. Nngwe.....pedi.....tharo. Itapolose.

31. Tsholetsa matsogo a gago, mme o kobe menwana ya gago gore e supe mmele wa gago. Jaanong diga matsogo a gago mme o itapolose.
32. Tsholetsa matsogo a gago gape. Jaanong a dige mme o itapolose.
33. Jaanong tsholetsa matsogo a gago mme mo nakong e o dikolose matsogo a gago. Go siame, itapolose gape.
34. Tsholetsa matsogo a gago gape. Itapolose.
35. Tsholetsa diatla tsa gago tse pedi go le go nnye go tswa mo setilong, mme o heme jaaka thwaelo. Jaanong diga diatla tsa gago. Itapolose.
36. Tsholetsa matsogo a gago gape go tswa setilong mme o gagamatse mesifa ya gago ya dikgoka go fitlha di tsikinyega. Hema jaaka tlwaelo, mme o repise diatla tsa gago. Repisa diatla (utlwelela mofuthu wa go itapolosa).
37. Jaanong emisa matsogo a gago ka mo matlhakoreng, o dire gore a lekalekane lea magetla. Gagamatsa dikgoka tsa gago. Ela tlhoko gore o heme jaaka tlwaelo. Lapolosa kgotsa repisa matsogo.
38. Seno ke pheletso ya thuto ya go itapolosa. Jaanong itheetse, go tswa maotong go ya tlhogong.

Ela tlhoko gore mesifa yotlhe ya mmele wa gago e repile (bua ka iketlo). Sa ntlha, menwana ya maoto, maoto, le marago, mpa, le magetla, thamo, le sefatlhego, matlho, sa bofelo

phatla. Ere phahla ya me e phuthulogile/repile. Mesifa yotlhe e lapologile/repile jaanong (quiet.....silence for about 10 seconds).

Robala moo mme o ikutlwe o lapologetswe, o utlwe le mofuthu wa go lapologa (pause). Ke batla o robale jalo go se nyee (sebaka sa motsotso), mme morago ga moo ke ya go bala go fitlha ka tlhano. Fa ke fitlha go tlhano, ke batla gore o bule matlho a gago, mme o ikutlwe o lapologetswe e bile o ntshafetse (silence for about one minute). Nngwe... o ikutlwa o lapologetswe, pedi... o lapologetswe e bile o ikutlwa o ntshafetse, tharo... o ntshafetse le go fetisa, nne... o lapologetswe thata, e bile o ntshafetse, tlhano..... o ikutlwa o lapologetswe e bile o ntshafetse go fetisa.

Adapted in part for Bernstein and Borkovec (1973) and Ross (1985a).

APPENDIX I

Progressive Muscle Relaxation Therapy (Northern Sesotho).

Rationale for Relaxation Training

Ke nyaka gore re ikgopotse ka polelo ye ke e boletsego le wena ka bohloko. O tla gopola gore bohloko gantshi bo sepela le go gogega ga mesifa ya moo go lego bohloko ge o ekwe mesifa e gogega, ke gore o tshogile. Letshogo le ka tlisa bohloko kudu, ka lebaka leo bohloko bo galefe le go ngangega ga mesifa go tle ka maatla.

Ka moo bohloko bo tlisa go tsiboga go latele letshogo. Go na gore bohloko bo tlisa tsibogo ya nmele (pain tension circle), O ka kgaola sekele ye ka go ithuta go iketla, ka go theetsa nmele wa gago ka moo bohloko bo fokotsege.

Ke tla go rufa mekgwa ye mentsi goba dithekiniki tsa go kgona go lebana le bohloko, O ka no di somisa go ahlola mathata a gago a bohloko, O tla mpotsa gore ke mokgwa o fe naa o go swanelago.

Ke tlile go go ruta go iketla, Mafelelong ke tla go kgopela gore o somise matlhale le dithekiniki tse gore ke kgone go bona gore naa o kgona bjang go fodisa sethabi.

Pele o ka tswela pele ka go itshodulla le go iketla, go ka ba kaone ge o ka humana setulo se o ka iketlang mo go sona, maota a gago a be mo fase, matsogo a gago a be ka mahlakoreng, o robale mpeteng goba fase ka mokgwa wa go iketla a lokologile, he o robale fase, o dire gore o robale ka mokokotlo, maoto a

nabe thwii le matsogo a be mahlakoreng. Pele re ka thoma, ke nyaka gore o tswalele mahlo a gago lebaka kamoka ge o itshidulla. Tsea motsotsonyana o itekola mmele, ka moka. Ke nyaka gore o lemoge dikwi mmeleng wa gago. Bjale ge ntse o lekola matsogo le maota a gago, o bone ge o ka lemoga dikwi goba tsibogo mmeleng wa gago.

Dumelela ditso tseo tsa mmele go iketla. Dumelela go hema ga gago gore go iketle. Ge ntse re itshidulla, re tla somisa mantsu le mafoko a latelago gore o iketle o phodile. O lemoge phapang magare ga tsibogo le go lokologa ga mesifa. Lemoga borutho, le gona go iketla go go phodileng. Lemoga gore mesifa ya gago e ikwa bjang e borutho, e boima e bile e iketlile go fapana le ge e garoga Emisa letsogo la go ja ge eba ga o kgonne go laola tsibogo ye.

Dikgato Tsa go Iketla.

1. Goga moya kudu-kudu o be o osware (metsotswana e lesome).
O sware. Bjale o ntshe,
2. Bjale koba menwana ye megola ya maoto gotee-kudu ka moo o kgonago, Tiisa. Agaa., iketle (setumetsotswana e 30).
3. Kobela maoto a gago morago gore menwana ya maoto e lebelele fase.
Lemoga tsibogo. Bjale iketle (Khutsa). Iketle.
4. Bjale kobela maoto a gago pele gore menwana e megolo e go lebelele. A kobe kudu. Iketle.

5. Ge ontse o swere ka tshidullo ye, emisa maoto a gago gore abe (45 angle). Bjale iketle. (Lemoga gore go iketla go tswela pele.
6. Bjale tsibola marago a gago ka go a goga se tee. Goga kudu. Bjale iketle.
7. Goga mesifa ya mpa o kare go na le motho yo a bethago mpa ya gago, kudu-kudu. Hema ga nnyane o iketle.
8. Bjale gogela mpa ya gago godimo o kare o lwela sefoka (Prize Fighter.
Tiisa mpa ya gago lketle (Bjale o ntse o iketla go ya pele).
9. Nagana o ka re go nale boima bjo bo gogago mesifa ya mmele wa gago, e o dira gore e lekelele e iketle. A gogela matsogo a gago le mmele wa gago mo sofeng.
10. Bjale, lekola mmele wa gago go ya maotong, sidulla setho sa mmele seo se sa tsibogilego (ema... 3-5 metsotsonyana) Go ya maotong (ema...3-5 metsotsonyana) Go ya diropeng. Sidula setho seo se sa tsibogilego. Bjalo sidulla marago le dimpa. Iketle kudu.
11. Bjale goga moya kudu o osware. Bjale o ntshe. Goga moya kamoka o tswe. Iketle (Lemoga maikutlo a a go hema go go makatsago).
12. Bjale koba magetla a gago morago. A sware bjalo. Dira gore matsogo a gago a iketle. Bjale iketle.

13. Kobela magetla a gago pele. A sware bjalo, o dire gore heme gabotse o be o lokolle matsogo a gago. Bjale iketle.
14. Bjale retollela hlogo ya gago letsogong la go ja o tsibole molala wa gago. O sware bjalo. Agaa ... iketle o dumele hlogo ya gago go iketla ka mokgwa wa tlwaelo.
15. Retollela hlogo ya gago go la ngele o tsibolle molala wa gago. Iketle o buse hlogo ya gago maamong a yona a tlwaelo.
16. Bjale, kobela hlogo ya gago marago ga nnyane. E sware bjalo. Agaa . . . bjalo busa hlogo ya gago morago gannyane mo maamong a yona a tlwaelo.
17. Ka nako ye, tlisa hlogo ya gago fase mo mafahleng. E sware bjalo. Bjale iketle o buse hlogo ya gago maamong a yona a tlwaelo.
18. Bjale, bula molomo wa gago kudu-kudu, gape.
Agaa ...iketle
(molomo o bulege gannyane mafelelong).
19. Bjale, tiisa molomo wa gago ka go o tswalela. Agaa...
iketle (lemoga mokgwa wo wa boiketle).
20. Bea leleme la gago godimo ka ganong. Le gatele, Ema.
Iketle o dumelele leleme la gago go ya madulong a lona.
21. Bea leleme la gago fase ka molomong. Le gatelele fase.
Iketle o dumele leleme la gago go iketla ka ganong.

22. Bjale robala moo o iketle. Leka go se nagane ka selo.
23. Leka go itaola gore o se bolele, ke nyaka gore o nagane okare o opela ka lentsu la pele e sego kudu! Bjale ikopelele. Swara noto (note) ya gago, o iketle.
24. Bjale opela ka lentsu la gare, o tsibole le lengwana la gago. Iketle.
25. Bjale opela ka lentsu la fase o tsibole le lengwana la gago gape. Iketle. (Lengwana la gago le iketle).
26. Bjale tswalela mahlo a gago. A tswalele kudu o heme ka tlwaelo. (Lemoga ge go tsiboga go nyamela).
27. Bjale tswalela mahlo a gago, bula molomo wa gago ga nnyane. Iketle.
28. Bula mahlo a gago kudu-kudu. A bule bjale. Bjalo dira gore mahlo a gago a iketle.
29. Bjale goga phatla ya gago kudu-kudu. E sware bjalo, iketle.
30. Bjale tswalela diatla tsa gago o dire difeisi. Kudu-kudu. Theeletsa tsibogo ka diatleng tsa gago. Ketlile go bala go fihla ka tharo, ge ke re 'tharo', ke nyaka gore o lese diatla tsa gago. Tee ...pedi ...tharo, Ikitle.
31. Emisa matsogo a gago, kobela menwana ya gago morago (go ya mmeleng). Bjale, lesa diatla tsa gago o iketle.

32. Emisa matsogo a gago gape. Bjale a lese o iketle.
33. Bjale, emisa matsogo a gago gape, bjale phayela matsogo a gago ka thoko. Aгаа, iketle gape.
34. Emisa matsogo a gago gape. Bjale iketle.
35. Emisa matsogo a gago godingwana ga bolawo (goba matsogo a setulo), a heme ka tlwaelo. Bjale, lesa matsog a gago bolawong goba fase. Iketle.
36. Emisa matsogo a gago go feta setulo gape, o be o tiise difaka go fihla di tshikinyega. Hema ga botse ka tlwaelo, o lokolle diatla tsa gago. Dira gore matsogo a gago a iketle. (Lemoga gore o kwa borutho bja go lokologa).
37. Bjale swara matsogo a gago mahlakoreng o be o tiise difaka tsa gago. Dira gore o heme gabotse. Lokolla matsogo a gago.
38. A ke mafelelo a boitshidillo bja go rutwa. Bjale lekola mmele wa gago go tloga motong go ya godimo. Dira gore mesifa kamoka e lokologile. (Bolela ga nnyane). Pele menwana ya maoto. Go latela maoto, .. . marago, dimpa, magetla, molala, sefahlego. Mahlo, le phatla ya ka e iketlile. Kamoka di swanetse go ba di iketlile bjalo.

(Setu ... Metsotswana e 10).

Bjale ithoballe moo o iketle, lemoga borutho le go iketla.
(Khutsa) Ke nyaka gore o dule motsotso ka tsela ye, bjale ke
tla bala go fihla tlhlano.

Ge ke fihla tlhlano, ke nyaka gore o bule mahlo a gago o ikwa
o phodile e bile le bokaone. (Setu ... Nako ya motsotso)

Tee ... Ke ikwa ke phodile, pedike phodile kudu ebile ke
phafogile; tharo ... Ke phafogile kudu; nne ke iketlile e
bile ke phafogile. Tlhano ... Ke phodile kudu-kudu, ke
iketlile e bile ke phafogile.

Adapted in part from Bernstein and Borkovec (1973) and Ross
(1985a).

APPENDIX J

Autogenic Relaxation (Autogenic Phrases)

Autogenic phrases have been found to be helpful to many people as a shorthand version of daily relaxation. Daily practice of these exercises is an essential part of learning the state of relaxation. It is important that the place where you do the exercises should be comfortable, quiet, private, and away from any disruption. For use of autogenic phrases, sit in a comfortable chair with feet on the floor, be sure you're sitting on your back, your legs uncrossed and your arms on your side. Check your body to make sure it is well supported and balanced, and take a deep breath.

Start with your Breathing

Notice your breathing

Allow your breath to come and go

Allow your stomach to rise as you inhale

Allow your stomach muscles to become soft and smooth
when you exhale

Repeat the following statements after me to yourself
(Silently)

I breathe slow and easy

With each exhalation, I am becoming more and more relaxed

My forehead is soft and smooth

My forehead is relaxed

My eyelids are very heavy

My eyelids are relaxed

My jaw hangs loose and limp

My jaw hangs open and heavy, deeply relaxed
My tongue floats in my mouth without touching anything
My neck is loose and limp, soft and smooth
I allow the chair (or pillow) to support my head
My neck is deeply relaxed
My shoulders are very heavy
My shoulders fall away from my ears
Both my shoulders are heavy and relaxed
My arms feel heavy
My arms are deeply relaxed
My hands are loose and limp
My hands are relaxed
My breathing is slow and easy
My back is soft and smooth
My back is deeply relaxed
My chest is soft and smooth
My stomach is soft and smooth, deeply relaxed
My buttocks are soft and relaxed
My right thigh is soft and smooth, very relaxed
My right calf is soft and smooth, very relaxed
My right foot hangs loose and limp, deeply relaxed
My left leg is extremely heavy, very relaxed
My breathing continues to be slow and easy
I am very quite and still
I am very calm and at peace
Each time I exhale, I become more and more relaxed

(Adapted from Ross, 1985a)

APPENDIX J

Autogenic Relaxation (Setswana)

Ke tlile go go ruta go lokologa. Ga o dira thuto e ya go lokologa ka mehla e tla go thusa go iketla. Go molemo gore o dire thuto e mo go didimetseng teng, moo o ka se tshwenyeng ke sepe. Tiriso ya thuto ya go lapologa e ka ba na le mosola mo botshelong jwa gago ge o e dirisa kgapetsa kgapetsa. Fa o dira thuto ya go lapologa nna mo sennelong se se tla go nnisang ka boiketlo maoto a gago a kgome lefatshe, diatla tsa gago di nne ka fa matlhakoreng, kgotsa o itapolose mo bolaong. Fa o robetse mo fatshe dira gore o robale ka mokotla, maoto a gago a seke a palamana, etswe le diatla tsa gago di le ka mo matlhakoreng. Mmele wa gago o tshwanetse go iketla le go sirelega. O tshwanetse go hemela ka sethu.

Simolola go hema

Tlhokomela go hema ga gago.

Dumella mohemo wa gago gore o tsene o be otswe.

Dumella mpa ya gago go buduloga le go tsenelela ka fa teng.

Dumella mesifa ya mpa ya gago go nna bonolo le borethe fa o ntsha mowa.

Boeletsa tse di latelang ka fa morago ga ka (Ka setu)

Ke hemela ka bonya le ka bonako.

Ka go ntsha mowa, ke bana le boiketlo.

Phatla ya me e bonolo e bile e borethe.

Phatla ya me e iketlile.

Setswalo sa matlho a me se iketlile.
 Metlhagare ya me ya leketla.
 Metlhagare ya me e bulegile e bile e bokete, e itapolositse.
 Ke letlela setulo se ke ntseng mo sona se tshegetsa tlhogo ya me.
 Molala wa me o a iketla.
 Magetla a me a bokete.
 Bobedi jwa magetla a me a bokete e bile a mo boitapolosong.
 Diatla tsa me di bokete.
 Diatla tsa me di mo boiketlong.
 Diatla tsa me di bonolo.
 Mohemo wa me o bonolo otswa e bile o le bonolo.
 Mokotla wa me o mo boiketlong.
 Sefuba sa me se mo boitapolosong thata.
 Mpa ya me e bonolo, e bobebe, e bile e itapolositse thata-thata.
 Marago a me a bonolo, a mo boiketlong.
 Serope sa me sa moja se bonolo, se itapolositse.
 Motlhafu wa me wa moja o bonolo, o itapolositse.
 Seatla sa me sa moja se itapolositse ka boiketlo.
 Leoto la me la moja le a ikgokolosa, le iketlile thata.
 Leoto la me la moja le boima, le iketlile.
 Serope sa me sa molema se bonolo, borethe etswe se iketlile.
 Seatla sa me sa molema se bonolo, borethe, e bile se iketlile.
 Leoto la la molema le a ikgokolosa ka boiketlo.
 Mohemo wa me o tswalela go nna bonya le go iketla.
 Ke didimetse ke le setu.
 Ke iketlile ka tidimalo.
 Ka metlha fa ke ntsha mowa, ke nna mo boiketlong.

(Adapted from Ross, 1985a)

APPENDIX J

Autogenic Relaxation (Northern Sotho)

Ketlile go go ruta go itapolosha. Thuto ye ya go itapolosa e bontshitse bohlokwa kudu go batho ba bantshi. Ge o ka itapolosa sa ka mehla, e tla go dira gore o pshine mo mmeleng.

Ge o dira thuto ye ya boitapoloso, o swanetse go kgetha lefelo la go hloka masata mo o ka kgonago go iketla, o sa tshwenye ke motho. O dule setulong se o tlogo go iketla, maoto a kgome fase, goba o robale ka mokokotlo, maoto a be thwii, ke gore a se tatane gomne matsogo a be mo matlhakoreng. O itlhokomele gore o tloga o dutse gabotse. Bjalo o heme kudu ka maatla.

Thoma ka go hema.

Tlhokomela go hema ga gago.

Dumelela mohemo wa gago go tsena o tswe.

Dumelela mpa ya gago go buduluga ge o hema.

Dumelela mesifa ya mpa ya gago go ba boleta ge o ntsha moya.

Boeletsa mafoko a a latelago ka morago gaka.

Ke hema ka boiketlo gabotse.

Ge ke ntsha moya, ke kwa ke iketlile kudu.

Phatla ya ka e boleta e bile e borethe.

Phatla ya ka e boima.

Mahlo a ka a iketlile.

Motlhagare waka o hlephile e bile o lekeletse.

Matlhagare waka o bulegile, o boima e bile o lapologile.

Leleme laka le lekelela ka mo molomong le sa kgome selo.

Molala wa ka o hlephile e bile o boleta.

Ke dumelala setulo (goba mosamelo) go thekga hlogo yaka.

Molala wa ka o tloga o iketlile.
Magetla a ka a boima.
Magetla a ka a wela kgole le ditsebe tsa ka.
Magetla a ka a boima e bile a iketlile.
Matsogo a ka a boima.
Matsogo a ka a iketlile.
Diatla tsa ka di hlephile.
Diatla tsa ka di lapologile.
Go hema ga ka go iketlile e bile go bofefe.
Mokokotlo wa ka o boleta.
Mokokotlo wa ka o iketlile kudu.
Mafatlha aka a boleta e bile a boreledi.
Mpu ya ka a boleta ebile e boreledi.
Marago a ka a boleta ebile a iketlile.
Serope sa la goja se borethe ebile se iketlile.
Leoto la ka la goja le boleta, le borethe ebile le iketlile.
Leoto la ka la goja le a lekelela, e bile le iketlile kudu.
Go hema go ka go tswela pele ka go iketla le go ba bofefe.
Ke homotse ke rile tu ebile ke iketlile.
Ke iketlile e bile ke na le kgotso.
Ge ntse ke hema, ke iketla kudu kudu.

APPENDIX K

Rationale for Imaginal Coping Skills and Assessment Exercise

Now that we have learned relaxation techniques, I am going to teach you something different. How to drift in your imagination from the experience of pain to a calm, less painful experience.

Your imagination will be used to help you cope with negative feelings and thoughts. Like before, I will request you to practice these skills so that I can see how good you are at managing your pain. I want you to occupy your thoughts with something other than relaxation, to use your thoughts about situations as another way of shielding yourself from pain. When you pay attention to the ideas presented to you, you either become less aware of painful sensations in your body or things in your environment that may trigger pain. You can control your attention by becoming aware of the thoughts or images coming to your mind, by paying attention to these thoughts, dwelling on them. If other unwanted thoughts come to your mind, just focus on your breathing, do this for a minute, try to relax and then refocus your attention on the image or thought presented to you. The more involving the thought is, the less attention you can give to other events.

Assessment Exercise

Now, I am going to ask you to imagine the following: Imagine yourself going on a trip to town or anywhere. Imagine yourself preparing for the trip packing your luggage, taking all the necessary things for the trip.

Thereafter, see yourself saying good bye to your loved ones, leaving home and going to a bus stop. See yourself catching the bus, its door opening, going up the stairs of the bus. Talking to the bus driver, paying for your ticket.

As you leave the driver, you proceed to the back of the bus looking around for a seat. As you scan through the bus searching for a seat you see one at the back. You immediately focus your attention on the particular available seat.

You eventually sit down, trying to relax. The bus moves as you are deep in thoughts and feeling very relaxed.

Then suddenly there is a funny smell, you try to analyse this smell. You come to realise that this smells like petrol. The petrol odour becomes too strong for you, too poignant in odour.

The smell becomes overbearing. A shiver goes up and down your spine. You try to open the window next to you but it won't open.

You try hard, it still won't open. You start to panic, your thoughts become clouded. Your legs also give in, they become weak. You encounter difficulty in breathing, your breathing increases with short intervals in between. You tell yourself I need help. I need fresh air otherwise I am going to suffocate.

Immediately, the thought comes to your mind, that you should get up, try and push the window with all the strength you've got. You slowly try to rise up, pluck some courage, and pull

the window down. A strong gush of wind flows into the bus. The air smells fresh. You feel relieved, slowly you sit down on your bus seat, and heave a sigh of relief.

I will count 1 to 4 then I want you to sit back and relax. Could you tell me how you felt, whether you could imagine the scenario presented to you.

APPENDIX K

Rationale for Imaginal coping skills and Assessment Exercise
(Setswana)

Jaanong ka gore re ithutile mokgwa wa go ikhutsa, ke ya go le ruta sengwe se seswa. Ke ya go le ruta go ntsha mogopolo wa lona mo setlhabing, go o tlisa mo o tla utlwang o tlhajwa ke setlhabi se, gannyane.

Kgopolo e ya gago e tla diriswa go go thusa gore o kgotlelele go ikatisa kgotsa o kgone go nna kgatlhanong le maikutlo le kgopolo ya setlhabi. Jaaka pele ke tla go kopa gore o ikatisa ka mekgwa ele ke tle ke kgone go bona gore o siame go le kana kang go ka laola setlhabi sa gago. Ke batla gore mo kgopolong ya gago o nagane ka sengwe fela ntle le go ikhutsa. O dirise monagano wa gago jaaka sengwe se o ka itshireletsang ka sona mo setlhabing.

Fa o nagana ka dikgopolo tse o di filweng o ka se utlwe botlhoko bo bo leng mo mmeleng wa gago, kgotsa o tsepamisa tlhaloganyo ya gago mo dilong tse di mo tikologong ya gago, tse di ka go tsosetsang setlhabi, di ka tlosa botlhoko.

Ke laola mogopolo wa gago ka go ela tlhoko gore o tsepamise monagano wa gago mo dikgopolong tse, fa setlhabi se go tlela. Fa go tla dikgopolo tse di sa batlegeng mo monaganong wa gago, dira jaana: Hema motsotso o le mongwe, o leke go ikhutsa, mme o nagane ka se kakanyo kgotsa kgopolo e o e filweng. Fa o nagana thata, ga o kitla o nagana thata ka tse dingwe.

Assessment Exercise (Thutiso ya tlhathobo)

Jaanong ke ile go go kopa go nagana ka dilo tse di latelang:
 Nagana o tsaya loeto go ya toropong kgotsa gongwe fela.
 Nagana o ipaakanyetsa loeto le, ka go phutha dithoto tsa
 gago, o tsaya dilo tsotlhe tse o ka di tlhokang mo loetong
 le.

Morago ga moo o ipona o salapisa batho ba o ba ratang, o
 tlogela legae go ya go emela bese. O ipona o namela bese,
 lebati la bese le bulega, o namela disetepise tsa yona. O
 buabua le mokgweetsi wa bese. O duele thekethe ya gago. Fa
 o tloga fa mokgweetsing wa bese, o ya kwa morago o feta o
 batla fa o ka nnang teng. Fa o ntse o batla bonno jaana, o
 bona bonno kwa morago mo beseng. Ka pejane o tsepamise
 monagano wa gago otlhe mo bonnong jole.

Fa morago o nna fa fatshe, o leka go ikhutsa. Bese e a tloga
 fa monagano wa gago o le kwa botenye ka dikgopolo le
 maikutlo a a repileng. Ka pejane o nkgelela monkgo oo. seng
 monate. O leka go nagana kgotsa go akanya ka monkgo o. O
 itemogela gore monkgo o, o nka jaaka peterole. Monkgo wa
 peterole o nna montsi thata gore o go utlwise botlhoko bo bo
 tseneletseng.

Ga o kgone go kgotlhelela monkgo oo. Letshogo le ya kwa
 godimo le kwa tlase ga mokwatla wa gago. O leka go bula
 letlhabaphefo le le gaufi le wena, mme le gana go bulega.

O leka ka thata, mme le santse le gana go bulega. O simolola
 go tshoga thata.

O timelelwa ke tihaloganyo kgotsa monagano maoto le ona a repetlana, a nna bokoa. O nna le bothata ba go hema, o hema o eta o nna le dikgaotse tse dinnyane mo gare. O ipolelela gore o tlhoka thuso. O tlhoka mowa o o phepa, go sa nneng jalo o ile go swa ka ntlha ya go tlhoka mowa o.

Ka pejane monagano wa go tlela wa gore o emelele, o leke go kgorametsa letlhabaphefo ka maatla a goga otlhe. O leka go emelela, o ititaya sebete, o bo o gogela letlhabaphefo kwa tlase. Phefo e e maatla e fokela mo teng ga besa. Mowa o, o nka bophepa. O ikutlwa o bolokesegile, ka bo iketlo o nna gape mo setilong sa gago mo beseng.

Ke tlile go bala go tloga ka 1 go fihlela 4, ke be ke batla gore o nne sentle, o repe. O ka mpolelela gore o ikutlwile jang, fa o ne o kgona go nagana ka lefelo le o ne o le filwe.

APPENDIX K

Rationale for imaginal coping skills and assessment exercise
(Northern Sotho)

Bjale ka ge re ithutile go itshidulla, ke tlile go go ruta se sengwe se se swa. Ke tlile go go ruta go ntsha mogopolo wa gago mo bohlokong, go isa mogopolo wa gago moo bohloko e lego bjo bo nnyane. Kgopolo ya gago e tla somiswa go go thusa go kgotlelela maikutlo le monagano wa go se loke. Bjale ka pele, ke tla go kgopela gore o ipoeletse ka mekgwa ye, gore ke kgone go bona gore o kgona bjang go lebana le bohloko bja gago.

Kenyaka gore o nagane ka se sengwe ntle le go itshidulla, o somise monagano wa gago ka mokgwa wa go ithibela go kwa bohloko. Ge o hlokomela dikgopolo tse o filwego, o ka se ke wa kwa bohloko e bile le dilo tsa go go kwesa bohloko o ka se di lemaga. O ka laola kgopolo ya gago ka go lemoga menagana ye e tlogo megopolong ya gago, ka go hlokomela menagano ye, le go bala-bala ka yona. Ge dikgopolo tsa go se nyakege di etla menaganong ya gago, wena bea monagano wa gago mo go hemeng ga gago, dira bjalo motsotso, leka go iketla, bjale busa monagano wa gago. Ge ntse monagana o amega, o tla humana sebakanyana go nagana ka ditiragalo tse dingwe.

Assessment exercise.

Bjale ke tlile go go kgopela gore o gopole ka tse di latelago:

Nagana o tsea leeto o eya teropong goba gongwe fela, Nagana o ipeakanyetsa leeto leo, o phutha merwalo, o tsea le dilo

kamoka tse di nyakegago leetong. Ka morago ga moo, ipone o laela ba o ba ratago, o tloga gae o eya boemong bja dinamelwa (bus). Ipone o bile o namela bese, lebati la bese le bulega, o namela disetepese tsa bese. O bolela le mootledi, o lefela thiketthe ya bese.

Ge o tlogela mootledi wa bese, o ya morago o ntse o nyaka bodulo. Ge ntse o nyakisisa ka moo beseng, o nyaka bodulo, o bona bodulo kwa morago. O napile o bea monagano wa gago mo bodulong bjoo.

Mafelelong o dula fase, o leka go iketla. Bese bjale e a tloga. O sa subeletse ka dikakanyo o iketlile kudu.

Ka potlako o kwa monkgo wa go se be bese, o leka go ipotsisa gore e ka ba ke eng. O napile o lemoga gore ke monkgo wa go swana le wa petrol. Monkgo wo wa petrol o ba bogale kudu go wena, kudu mo go sa kgahlisego.

Monkgo wo, o tla ka maatla a go se kgotlelelege. O tshoga kudu moo e lego gore mokokotlo o a thothomela. O leka go bula lefesetere la kgaufsi le wena, empa ga le nyake go bulega. O leka kudu ka maatla, le ntse le gana go bulega. O thoma go tshoga, dikgopolo tsa gago di a timelela. Maoto a gago a felela ke maatla e bile ga a kgone go dira selo. O ba le mathata a go hema, go hema go a potlaka. O ipotsa gore bjalo gona ke nyaka thuso. O nyaka moya wa go hlweka go seng bjalo o tla kangwa.

Ka nakonyana, monagano o a boa, o re o eme, o leke go kgarametsa lehlabaphefo ka maatla kamoka a onago le wona. O leka go ema ga nnyane, o iphe mafolofolo, o kgarametse lehlabaphefo fase. Moya o tsena ka maatla ka beseng. Moya o

nkgaga ga bose. O ikwa o le kaone, ga nnyane. O dula ma bodulong bja gago, o busa moya wa go iteboga.

Ke tla bala go thoma go tee go fihla go nne (1 to 4), bjalo ke tla rata gore o dule botse o iketle.

Naa o ka mpotsa gore o ikwele bjang? Naa o kgonne, go nagana ka kakanyo ye o ifilwego?

APPENDIX L

Imaginal Coping Skills

The following imaginal scenes are adapted from Harlowe and Yu (1984) and some are the ideas of the researcher.

Instructions

The following imaginal scenes have been found useful in controlling pain. We will try each of these imaginal scenes in order to see which ones help you to make your pain more bearable. You may use these imaginal scenes together with relaxation techniques or relaxing words. We will try each of the pain controlling methods in order to see which ones give you maximum control of your pain. After you have learned these techniques, try out one technique at a time. When it does not work switch over to the next technique until you have found the one which seems to control your pain the best. Take a slow deep breath and exhale slowly before starting your exercises.

Attention Diversion StrategiesAdding Aloud

$$5 + 10 = 15$$

$$3 + 8 = 11$$

$$7 + 6 = 13$$

$$20 + 11 = 31$$

$$7 + 3 = 10$$

Counting Aloud from 30 Backwards

29, 28, 27, 26, 25, 24, 23, 22, 21,

20, 19, 18, 17, 16, 15, 14, 13, 12

11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1

Nature Fantasy Script

Place yourself in a comfortable position, with all parts of your body aligned and supported. Allow yourself to relax as you focus attention on your head... neck... shoulders... arms... and hands.

Allow yourself to relax as you move your attention to your spine...hips...pelvis...legs...and feet. Feel the movement within your body as you breathe in and out. Keep in mind that when we are relaxed, the stomach moves out as we inhale...and moves back in as we exhale. Simply feel yourself breathe...and allow yourself to relax.

Imagine that you are in a very beautiful forest...a forest filled with lovely sights and sounds. Visualise the trees, with their many shades of green. Notice the colours of the plants and flowers covering the forest floor. Patches of blue and golden sunlight from the sky sparkle through the trees.

Now, moving from this forest, welcome upon a lovely open meadow covered with flowers. Grasses gently sway in the breeze. Looking up, we see the beautiful blue sky dotted with a few white puffs of clouds. The air is the perfect temperature.

Wander through the meadow and forest as long as you like, allowing yourself time to truly enjoy the whole experience. Enjoy this feeling of tranquility and repose. There's nothing

to do but to allow yourself to experience complete relaxation...just let go and relax. Remember, we have the power to help ourselves feel better and better each day.

Pain Drain Script

First take some time to make sure that you are in a really comfortable position. Make a quick check from head to toe to determine whether your whole body is being supported. Adjust any parts that feel uncomfortable. Try not to have legs or arms crossed. Most importantly, do what is most comfortable for you.

Now, close your eyes.

Become aware of your breathing. Feel the movement of your body as you breathe in and out. Breathe in slowly, and exhale. On your next breath, focus on the image of breathing in good, clean air...and exhaling all your tensions with your breath out. Allow your breathing rhythm to pleasantly slow down. Feel as though tension is being released each time you breathe out.

Now, feel within your body and note where you experience pain or tension. Imagine that the pain or tension is turning into a liquid substance. This heavy liquid flows down through your body and out through your fingers and toes. Allow the pain to drain from your body in a steady flow. Now, imagine that a gentle rain flows down over your head...and further dissolves the pain...into a liquid that continues to drain away. Feel within your body, and experience a refreshing sense of comfort and well-being. Keep in mind that taking time to relax and

feeling good...affects not only you...but others whose lives you touch.

Disappearing Pain Script

Sit in a comfortable position, with all parts of your body aligned and supported. Your eyes may be open or closed as you wish.

Allow yourself to relax as you focus attention on your head...neck...shoulders...arms...and hands. Allow yourself to relax as you move your attention to your spine...trunk...hips...pelvis...legs...and feet. Take a moment to feel the movement within your body as you breathe in and out.

Now, notice any tension or pain that you are experiencing. Imagine that the pain takes the form of an object...or several objects. It can be rocks, wood, pebbles, crystals, or anything else that comes to mind. Pick up each piece of pain, one at a time, and place it in a box. As you drop each piece into the box, it dissolves into nothingness. Now, again survey within your body to see if any pieces remain, and you may remove them if you wish. Imagine that your body is lighter now, and allow yourself to experience a feeling of comfort and well-being. Enjoy this feeling of tranquility and repose, and keep in mind that we have the power to help ourselves feel better and better each day.

Healing Potion Script

Sit in a comfortable position, with all parts of your body aligned and supported. Allow yourself to relax as you focus attention on your head...neck...shoulders...arms...and hands. Allow yourself to relax as you move your attention to your spine...trunk...hips...pelvis...legs...and feet. Take a moment to feel the movement within your body as you breathe in and out.

Now, imagine you are in a drug store that is stocked with bottles and jars of exotic potions. Each potion has a special magical quality. Some are pure white light lotions, others are balms and creams, and yet others contain healing vibrations. As you survey the many potions, choose one that appeals to you. It may even have your name on the container. Open the container and cover your body with that magical potion.

As you apply it, let any pain or tension slowly melt away, leaving you with a feeling of comfort and well-being. Imagine that you place the container in a special spot, and that it continually renews its contents for future use.

Allow yourself to relax and enjoy this feeling of tranquility. Keep in mind that taking time to nurture yourself, affects not only you, but all those whose lives you touch.

Leaving Pain Behind Script

Place yourself in a comfortable position, with all parts of your body aligned and supported. Allow yourself to relax as you focus attention on your head... neck... shoulders... arms... and hands. Allow yourself to relax as you move your attention to your spine...trunk...hips...plevis...legs...and feet.

Feel the movement within your body as you breathe in and out. Keep in mind that when you are relaxed, the stomach moves out as you inhale. Simply feel yourself breathe...and allow yourself to relax.

Imagine that you are dreaming now. Although your body stays in the same position, imagine that you are gently leaving it, just as you do when you are asleep. As you leave your body, notice that you have also left your tension and pain behind. Pick a special spot to visit, one that brings pleasure and a feeling of well-being. Notice how dream-like your body feels as you visit this special place. Linger here for a while...and when you feel ready, return to your position in alignment with your body. When you open your eyes, retain the freedom from tension and pain, and continue to experience a sense of comfort and well-being. Keep in mind that you have the power to help yourself feel better and better each day.

Well-Being Technique

Imagine yourself healed of any pain, disease or tension.
"See" and "feel" yourself strong, healthy, and comfortable.

APPENDIX L

Imaginal Coping Skills (Setswana)

The following imaginal scenes are adapted from Harlowe and Yu (1984) and some are the ideas of the researcher

Instructions

Dipontsho tsa menagano tse di latelang di bonwe di le mosola mo go laolang setlhabi. Re tla leka e nngwe le e nngwe ya dipontsho tsa menagano gore re tle re bone gore ke dife tse di ka go thusang go emelelana le setlhabi. O ka dirisa dipontsho tse tsa menagano le thuto tsa go itapolosa kgotsa le mafoko a a lapolosang. Re tla leka mekgwa yotlhe ya go laola setlhabi ka bongwe ka bongwe gore re tle re bone gore ke efe e e go fang kgonego e e feteletseng ya go laola setlhabi. Fa o setse o ithutile dithekeniki tse, leka thekeniki e le nngwe ka nako. Mme fa e sa dire sentle, dirisa thekeniki e e latelang, go fitlhelela o bona e e ka reng e laola setlhabi sa gago thata. Hema ka iketlo, mme o ntshe moya.....ka iketlo pele o simolola kabo dikatiso tsa gago.

Attention Diversion StrategiesAdding Aloud

5 + 10 = 15
 3 + 8 = 11
 7 + 6 = 13
 20 + 11 = 31
 7 + 3 = 10

Counting Aloud from 30 Backwards

29, 28, 27, 26, 25, 24, 23, 22, 21,
 20, 19, 18, 17, 16, 15, 14, 13, 12,
 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1

Nature Fantasy Script

Baya mmele wa gago mo maemong a a repileng o dire gore dithwe tsa mmele wa gago di tshegeletsegile. Itetlelele gore o repe fa o ntse o tsepamisitse kakanyo ya gago mo lerapong la gago la mokotla, dirope, marapo a letheka, maoto, le menwana. Reetsa motsamao mo mmeleng wa gago fa o ntse o hemela kwa ntle le kwa teng.

Gopola gore fa re repile, mpa e tswela kwa ntle fa o hemela mo gare, e be e boela kwa morago fa re hemela kwa ntle. Itheetse fa o hema o be o itetlelele go repa.

Nagana gore o mo nageng e ntle...naga e e tletseng medumo le dipono tse dintle. Dira e kete o bona ditlhare, ka mebala ya teng e botala. Lemoga mebala ya dimela le dithunya tse di apereng naga. Dipatswa tsa botala jwa legodimo le gauta ya tlhabo ya letsatsi le kganya mo gareng ga ditlhare.

Jaanong, go tswa mo nageng e, re ne ra kopana le tshingwana e ntle ya dithunya. Ditlhaga di fokiwa ke pheswana. Fa re lebelela kwa godimo, re bona bontle jwa botala jwa legodimo, e bile bo nna le dipadipadi tse ditshweu tsa maru. Moya o na le mogote o o lekaneng.

Tsamaya mo gare ga tshingwana le naga ka nako e o e ratang, o iphe nako ya gore o utlwe monate wa tiragalo yotlhe. Ga gona se o tshwanetseng go se dira gore o lapologe gotlhelele... itlogelele, o repe.

Gopola, re na le bokgoni jwa go ithusa go ikutlwa botoka tsatsi le letsatsi.

Pain Drain Script

Tsaya nako gore o netefatse gore o dutse ka mokgwa o leng gore mmele wa gago o lokologile. Batlisisa ka bonako go tswa mo tlhogong go ya leotong gore mmele wa gago otlhe o tshegeletsegile. Baakanya dirwe dingwe le dingwe tse di sa lokologang. Leka gore o seke wa fanaanya maoto kgotsa matsogo...se se botlhokwa ke gore o dire se se go lokololang thata.

Jaanong, tswala matlho a gago. Lemoga go hema ga gago. Reetsa motsamao wa mmele wa gago fa o hemela ka mo teng le kwa ntle. Hema ka bonya, o ntshetse moya kwa ntle. Ka mohemo wa gago o o latelang, tsepamisa kakanyo ya gago mo setshwantshong sa go hema moya o o phepa...le fa o hemela kwa ntle, letsapo la gago lotlhe le tswa mohemo oo. Letlelela moribo wa mohemo wa gago o iketle sentle. Ikutlwe e kete letsapa le a tswa nako nngwe le nngwe fa o hemela kwa ntle.

Jaanong, ikutlwe mo mmeleng mme o lemoge mo o utlwang botlhoko kgotsa letsapa. Nagana gore botlhoko kgotsa letsapa le fetoga go nna metsi. Metsi a, a elela mo mmeleng wa gago go ya mo menwaneng ya matsogo le maoto. Lokolola mmele wa gago, o dumelele ditlhabi di tswa mo mmeleng wa gago di iketlile.

Jaanong, ke batla gore o nagane gore pula ya na, metsi a pula a wela mo tlhogong ya gago, a ntse a gakolola botlhoko. Mme fa botlhoko bo ntse bo gakologa bo fetoga go nna metsi a mantsi a a tswelelelang go tswa mo mmeleng wa gago.

Itheetse mo mmeleng, o iketle, e bile fa o le boiketlong joo, o tla utlwa o lapologile mo moyeng le mo mmeleng. Fela o se

lebale gore go tsaya nako go iketla go a itumedisa, e bile go itumedisa le bao ba dulang le wena, bao o ba ratang.

Disappearing Pain Script

Baya mmele wa gago mo maemong a a repileng, o dire gore dithwe tsa mmele wa gago di tshegeletsegile. O ka nna wa bula kgotsa wa tswala matlho a gago jaaka o rata.

Itetlelele gore o repe fa o ntse o tsepamisitse kakanyo ya gago mo tlhogong, thamong, magetleng, matsogong le diatleng.

Itetlelele gore o repe fa o ntse o tsepamisitse kakanyo ya gago mo lerapong la gago la mokotla, dirope, marapo a letheka, maoto le menwana. Tsaya nako, go reetsa motsamao mo mmeleng wa gago fa o ntse o hemela kwa ntle le kwa teng.

Jaanong, lemoga letsapa kgotsa botlhoko bongwe le bongwe jo o bo utlwang. Nagana gore botlhoko bo tsaya setshwantso sa selo kgotsa dilo. E ka nna matlapa, magong, digalase, se sengwe le se sengwe se o ka se naganang.

Sela, seripa sa botlhoko, mme o sele-sele sengwe ka nako o se tsenye mo lebokosong. Fa o latlhela seripa sengwe le sengwe mo lebokosong se gakologela go nna lefela.

Jaanong, ke batla gore o boele mo mmeleng wa gago o batlisisise gore a go sa ntse go sa na le diripa tsa botlhoko tse di setseng, o ka dintsha fa o rata.

Nagana gore mmele wa gago o bofefo jaanong, mme o itetlelele gore o ikutlwe o phuthulogile mo mmeleng le mo moyeng.

Itumelele maikutlo a a boitumelo, mme o lemoge fa re na le maatla go ithusa go ikutlwa botoka tsatsi le letsatsi.

Healing Potion Script

Baya mmele wa gago mo maemong a a repileng o dire gore dithwe tsa mmele wa gago di tshegeletsegile.

Itetlelele gore o repe fa o ntse o tsepamisitse kakanyo ya gago mo lerapong la gago la mokotla, dirope, marapo a letheka, maoto le menwana. Tsaya nako go reetsa motsamao mo mmeleng wa gago fa o ntse o hemela kwa ntle le kwa teng.

Jaanong, nagana gore o mo shopong ya melemo (chemise). Go na le dibotlolo tsa melemo tse di fodisang mmele. Molemo o mongwe le o mongwe o na le thuso ya ona. E mengwe ya melemo e, ke ditlolo tse ditshweu, tse dingwe ke ditlolo fela, mme tse dintsi tsa tsona di na le bokgoni jwa go fodisa mmele.

Jaanong, fa o ntse o lebeletse ditlolo tse, le one melemo e, ke batla gore o tlhope molemo, kgotsa sona setlolo se o se ratang. Mme e bile setlolo seo, se ka nna sa nna le leina la gago kwa ntle. Bula lebotlolo leo, o tshase mmele wa gago ka setlolo seo. Fa o ntse o se tshasa, letlelela gore botlhoko kgotsa letsapa le lengwe le lengwe le gakologele ruri, e bile o sala o phuthugile mo mmeleng le mo moyeng.

Nagana gore o baya lebotlolo le, mo tulong e e kgethegileng, mme mo tulong e e kgethegileng, mme fela le tswelala go ntshafatsa go dirisiwa mo isagweng.

Itetlelele gore o repe e bile o itumelele maikutlo a a boitumelo. Fela se le bale gore go tsaya nako go itlhokomela ga go ame wena fela mme go ama le ba ba go ratang.

Leaving Pain Behind Script

Baya mmele wa gago mo maemong a a repileng o dire gore dithwe tsa mmele wa gago di tshegeletsegile. Itetlelele gore o repe fa o ntse o tsepamisitse kakanyo ya gago mo lerapong la mokotla, dirope, marapo a letheka, maoto le menwana.

Tsaya nako go reetsa motsamao mo mmeleng wa gago fa o ntse o hemela kwa ntle le kwa teng. Gopola gore fa o repile, mpa e tswela kwa ntle fa o hemela ka mo gare. Itheetse fa o hema o be o itetlelele go repa.

Nagana gore o a lora jaanong. Le fa mmele wa gago o dutse mo tulong e le nngwe, nagana gore o tlogela mmele wa gago jaaka fa o le mo borokong. Fa o ntse o tlogela mmele wa gago, lemoga fa o ntse o tlogela le letsapa le botlhoko kwa morago. Tlhopa lefelo le le kgethegileng go le etela, mme e nne lefelo le le tlisang boitumelo le maikutlo a a itekanetseng. Lemoga gore mmele o wa gago o e keteng wa ditoro gore o utlwala jang fa o etela lefelo le le kgethegileng le. Repa foo nakoana.....fa o ikutlwa o siame, boela mo maemong a gago go ya ka mmele wa gago. Fa o bula matlho a gago, sala ka moya o o kgololosego mo letsapeng le botlhokong, mme o tswelele go utlwa o phuthulogile mo mmeleng le mo moyeng. O se lebale gore o na le matla a go ithusa go ikutlwa botoka tsatsi le letsatsi.

Well-being Technique

Inagane fa o fodile o se na botlhoko, bolwetsi kgotsa letsapa.
"Bona", o "ikutlwe" o na le matla, o itekanetse e bile o
phuthulogile.

APPENDIX L

Imaginal Coping skills (Northern Sesotho)

Dikakanyo tsa dipontsho tse di latelago, di tswa go Harlowe le Yu (1984) tse dingwe ke dikakanyo tsa molekodi (reseacher)

Instructions

Dikakanyo tsa dipontsho tse di latelago di humanwe di le botoka go fodisa matlhabi goba bohloko. Re tla leka e nngwe le e nngwe ya dikakanyo pontsho tse, gore re bone gore ke tse dife tse di ka dira gore o kgone go kgotlella bohloko. O ka somisa dikakanyo pontsho tse mmogo le mekgwa ya go sidulla goba mantsu a go thoba. Re tla leka mekgwa ya go okobatsa bohloko gore re kgone go bona gore ke ofe mokgwa wa go okobatsa bohloko kudu. Ge o ithutile mekgwa ye, leka o tee ka o tee ka nako. Ge o sa some, tswela pele o leke mokgwa wo mongwe go fihla o humana mokgwa wa go kgona go okobatsa bohloko bja gago go feta mekgwa ye mengwe. Bjale goga moya kudu o iketlile, o ntshe ka boiketlo pele o thoma go itshidulla.

Attention Diversion Strategies

Adding Aloud (Tlhakantsha, o bolelle godimo).

$$5 + 10 = 15$$

$$3 + 8 = 11$$

$$7 + 6 = 13$$

$$20 + 11 = 31$$

$$7 + 3 = 10$$

Counting Aloud from 30 backwards. (Balela morago o thome ka 30)

29, 28, 27, 26, 25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15,
14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1.

Nature Fantasy Script

Dula gabotse o iketle, ditho kamoka tsa mmele di iketle o ithekge. Iketle o ise monagano wa gago hlogong ... molaleng ... magetleng ... matsogong le diatleng. Iketle kudu-kudu, isa monagano wa gago mokokotlong ... dinokeng ... lethekeng ... maotong le dikgatong. Theeletsa mmele wa gago ge ntse o hema moya ka gare le ka ntle. O gopole gore ge re iketlile mpa e tswela ntle, ge re goga moya e boele bodulong, ge re ntsha moya e boela ka ntle. Itheeletse ge ntse o hema, o iketle.

Nagana o le lesokeng le le botse, lesoka la dilo le medumo e mebotse. Nagana ka ditlhare le meriti ya yona e metalana. Lemoga mebala ya dibyalo le matsoba a a kgabisitsego mo fase. Botala bja leratadima le letsatsi di phara-pharile mokgahlo ga ditlhare. Bjale, go tswa mo lesokeng, re fihla moo e lego matsoba feela. Bjang le bona bo ntse bo foka ke moya. Ge re lebelela godimo, re bona leratadima le le botse le maru a maswaana. Moya o bose kudu.

Sepela-sepela mo lesokeng ka moo o ratago ka gona, o ipshine o be o thakgale gona moo. Epshine ka lefelo le. Go go se o ka se dirago ge e se gona go itumelela go iketla, o itshidulle ... o iketle. Gopola gore, re na le maatla a go ithusa gore re be kaone kudu letsatsi le lengwe le le lengwe.

Pain Drain Script.

Sa pele dira gore o tsee nako go fihla o dutse botse. Lekola go thoma hlogong go fihla maotong gore mmele kamoka o ithekgile. Lokisa moo go sa iketlago. O bone gore maoto goba matsogo ga se a tatane, se segolo ke gore o dire se se lego kgahlago. Bjale, tswalela mahlo a gago.

Lemoga gore o a hema. Teeletsa mmele wa gago ge ntse o hemela ka gare le ka ntle. Hema ga nnyane, o buse moya. Ge ntse o hema, lemoga gore o hema moya wa bose e bile o ntsha moya wa boima. Dira gore o hema ka go iketla. Theeletsa o ka re tsibogo goba moya wa boima o a tswa ge ntse o hema ka ntle. Bjalo, itheeletse o be o lemoge gore naa bohloko goba tsibogo di tswa kae. Nagana o ka re bohloko goba tsibogo di a tologa. Meetse a a boima a go tshela mmele le menwana ya maoto le matsogo. Dumelela bohloko go tswa mmeleng ka go iketla. Bjale nagana o ka re pula e go nela gannyane mo hlogong, e bile e tolosa bohloko bjo bo tswago mmeleng bjalo ka meetse. Itheeletse o be okwe bose le go iketla mmeleng wa gago. Nagana gore go tsea nako go iketla le go kwa bose. Gopola gore botlhoko ga bo ame wena fela, bo ama le bao o phelago le bona.

Disappearing Pain Script

Dula ga botse o iketle, o thekge ditho kamoka tsa mmele. O ka bula goba wa tswalela mahlo ka moo o nyakago.

Iketle ge o isa mogopolo hlogong ... molaleng ... mmeleng ... dinokeng ... maotong le dikgatong. Tsea nakonyana, o itheeletse geon tse o hema moya ka gare le ka ntle. Bjale, lemoga tsibogo goba bohloko bjo o bo kwago. Nagana o kare bohloko bjo bo swana le selo goba dilo. E ka ba maswika, dikgong,

maswikana a go phadima le tse dingwe tse o ka dinaganago. Tsea bohloko ba gago o bo lokele ka lepokising ga nnyane, ga nnyane. Ge ntse o bo lokela ka lepokising, bo a tologa o ka re ga se selo. Bjale, lekola mmele wa gago go bona gore go na le bohloko bjo bo setsego, bo ntshe ge o nyaka. Nagana o ka re mmele wa gago obofefe bjale, o itumelele go iketla le go kwa bose. Epshine ka go kwa bose o iketlile, o gopole gore re na le maatla a go ithusa gore re be kaone ka mehla.

Healing Potion Script

Dula o iketle, o thekge ditho kamoka tsa mmele. Iketle o ise monagano hlogong, molaleng, magetleng, matsogong, le diatleng. Iketle kudu, o ise mogopolo wa gago mokokotlong, mmeleng, dinokeng, maotong le dikgatong. Tsea motsotsonyana o itheeletse ge o hema moya ka gare le ka ntle.

Bjale, nagana o le ka lebenkeleng la go rekisa meriana e e tletsego ka mabotlong a go tsea gabotse. Le lengwe le lengwe la mabotlolwana a le nale boganka bja lona. A mangwe a mabotlololo a nale ditlolo tse di sweu, tse dingwe ke tsa go itshasa ge tse dingwe di nale dihlare tsa go fodisa. Ge o ntse o lekola moriana ye, kgetha le le go kgahlago. O ka ba wa humana le nale lebitso la gago. O ka le bula wa itlotsa mmele wa gago ka moriana woo.

Ge ntse o itshasa, dumelela matlhabi le tsibogo go tologa mmeleng wa gago, o tla kwa bose o iketlile. Nagana o ka re o bea moriana wo mo go tsebago wena, le gore o ntse o galefa gore o o somise go ya pele.

Dula o iketle o ipshine ka boiketlo bjo. Lemoga gore go tsea nako go ihloko mela go ithlokomela ga go wena fela, go thusa le bao ba dulago le wena.

Leaving Pain behind script

Dula botse o iketle, thekga ditho kamoka tsa mmele. Iketle o ise mogopolo wa gago hlogong, malaleng, magetleng, matsogong, le diatleng. Dira go re o iketle o ise mogopolo wa gago mokokotlong, mmeleng, dinokeng, maotong le dikgatong.

Itheeletse ge ntse o hema moya ka gare le ka ntle. Gopola gore ge o iketlile, mpa ya gago e budulega ka ntle ge o goga moya. Iketle ge o hema.

Nagana o ka re oa lora. Le ge mmele wa gago o sa tshikinyege, nagana o ka re o tswa mo mmeleng wa gago ga nnyane, go swana le ge o robetse. Ge o etswa mmeleng wa gago bjalo, nagana a ka re o tlogetse tsibogo le ditlhabi gona moo. Kgetha lefelo le o ka le etelago, lefelo la go go thabisa le go tsea gabotse. Theeletsa mmele wo wa ditoro ge o etetse lefelo le. Ema, ema lefelong le nakonyana, ge o lokile bjale boela mmeleng wa gago wa nnete. Ge o bula mahlo, ito kolle go tswa tsibogong le bohlokong, o ipshine ka go iketla gabotse. Lemoga gore o nale bokgoni le maatla a go ithusa gore o be kaone ka mehla.

Well-Being Technique

Ikgopole o setse o fodile, o se sa na ditlhabi, bolwetsi le tsibogo. Ipone o ikwe o tiile, o phedile gabotse o thakgetse.

The following is adapted and translated from Turk (1975); Turk, Meichenbaum and Genest (1983).

APPENDIX M

Rehearsals for Pain Management.

1. Preparing for the Painful Stressor (Turk, 1975)

What is it you have to do?

You can develop a plan to deal with it.

Just think about what you can do about it.

Don't worry; worrying won't help anything.

You have lots of different strategies you can call upon.

2. Confronting and Handling the Pain (Turk, 1975)

You can meet the challenge.

One step at a time; you can handle the situation.

Just relax, breathe deeply and use one of the strategies.

Don't think about the pain, just what you have to do.

This tenseness can be an ally, a cue to cope.

Relax. You're in control; take a slow deep breath. Ah.

Good. This anxiety is what the trainer said you might feel. That's right; it's the reminder to use your coping skills.

3. Coping with Arousal and Agitation (Novaco, 1974)

Your muscles are starting to feel tight.

Time to relax and slow things down.

4. Coping with Feelings at Critical Moments (Turk, 1975)

When pain comes just pause; keep focussing on what you have to do.

What is it you have to do?

Don't try to eliminate the pain totally; just keep it manageable.

You were supposed to expect the pain to rise; just keep it under control.

Just remember, there are different strategies; they'll help you stay in control.

When the pain mounts you can switch to a different strategy; you're in control.

5. Reinforcing Self-Statements (Turk, 1975)

Good, you did it.

You handled it pretty well.

You knew you could do it!

Wait until you tell the trainer about which procedures worked best.

APPENDIX M (Setswana)

Rehearsals for Pain Management

1. Preparing for the Painful Stressor (Turk, 1975)

Ke eng se o tshwanetseng go se dira? O ka loga leano go se kgona? Nagana gore o ka dira eng ka sona? Se tshwenyega, go tshwenyega go ka se go thuse ka sepe. O na le maano, a mantsi a a farologaneng a o ka dirisang.

2. Confronting and Handling the Pain (Turk, 1975)

O ka kgona go lebana le bothata. Tsaya kgato e le nngwe ka nako, o ka kgona tiragalo eno.

Lapologa, hemela kwa teng, dirisa nngwe ya maano.

Se nagane ka setlhabi, fela se o tshwanetseng go se dira.

Go gagamala go e ka be e le sesupo sa go kgona thoma maano a ke go rutilent ona.

Lapologa. O na le bokgoni, hema ka bo iketlo. O dirile sentle. Letshogo le, ke le mokatisi a rileng o tla le utlwa. Go siame, ke kgopotso ya gore o dirise maitemogelo a gago a bokgoni.

3. Coping with Arousal and Agitation (Novaco, 1974)

Mesifa ya gago e simolola go thatafala. Ke nako ya gore o lapologe, o iketle.

4. Coping with Feelings at Critical Moments Turk (1975)

Fa setlhabi se tla o emise, mme dula o lebeletse se o tshwanetseng go se dira.

Ke eng se o tshwanetseng go se dira?

Se leke go tsamaisa setlhabi gotlhelele, o leke gose beya mo o ka kgonang teng.

O ne o tshwanetse go lebelela gore setlhabi se tlile go tlhatlhoga, leka go se beya ka mokgwa o o ke e kgonang ka ona. Gopola go na le maano a a farologaneng, a ka go thusang gore o kgone go ikemela.

Fa setlhabi se oketsega o ka dirisa leano le le farologaneng, mme ka jaalo o na le bokgoni.

5. Reinforcing Self-Statements (Turk, 1975)

Go siame, o dirile sentle.

O dirile bontle.

O ne o itse gore o tla dira.

Ema pele o bolelela mokatisi wa gago gore ke ditsamaiso dife tse berekileng go fetisa.

APPENDIX M (Northern Sesotho)

Rehearsals for Pain Management

1. Preparing for the Painful Stressor (Turk, 1975)

Ge o itukisetsa botlhoko ke eng seo o tlogo go se dira. Hwetsa dikgonakgono tsa go somisa, o na le tsona. Dula, nagana ka seo o tlang go se dira. O se ke wa belaela, dipelaelo ga di thuse selo, o na le mano, ke go rutile mano a go lwantsha matlhabi a gago. O tla tshwanela go ithuta go somisa mano ao (Meichenbaum and Turk).

2. Confronting and Handling the Pain (Turk 1975)

Ya bobedi, tshwara setlhabi, ikemisetse go lebantsha botlhoko, latela lenaneo. O tla kgona go okobatsa botlhoko. Ke go rutile gore o kgone go laola go hema, ge o hema ka thuto yeo ke go rutileng yona, o e latela gabotse, o tla lwantsha bolwetsi. Ikhutse, tshwara setlhabi seo, hema ka matla, o somise e mengwe ya mehlala. Fetsa go nagana ka botlhoko, gopola fela ka seo o tshwanetseng go se dira. Go tlhakatlhakana go ka bitsa matlhabi, ge o tlhakatlhakane ke tsebiso ya go ithusa gore o kgone go itshwara. Thekga ditho, se heme ka pele, fela hema ka matla. Ke gabotse, maikutlo ao o lego go wona, ke a moalafi, ke gabotse o kgonne. Somisa kgakollo ye go tswela pele ka mosomo wa gago.

3. Coping with Arousal and Agitation (Novaco, 1974)

Mesifa ya gago e thoma go thatafala. Ke nako ya gore o lapologe o ikettle.

4. Coping with Feelings at Critical Moments (Turk, 1975)

Lemogela maikutlo a gago ka nako ya matlhaba, ke thuto ya boraro. Ge setlhabi se thoma, khutsa. Nagana fela ka seo o tlogo go se dira. Ke eng seo o tlang go se dira? O seke wa leka go fedisa setlhabi fetsi-fetsi, leka go kgotlelela, o tshwanetse go ikemisetsa botlhoko. Fela kgotlelela. Kgotlelela, gopola gore moalafi o go rurile mano a mantshi ao a tlang go go thusa go laola botlhoko. Ge botlhoko bo oketsega, o na le yona toka ya go fapogela mano ao a tlhago, ka go thusa go e kgotlelela. Gape o ka kgona go ithusa ka go dira ditaelo tsa moalafi. A o kgonne, wa kgona, ke gabotse, wa kgona, o somile gabotse, o somisitse mano ao o a filweng ke moalafi.

5. Reinforcing Self-Statements (Turk, 1975)

O tlogile o tseba gore o tla kgona, ema o botse moalafi ka mano ao o a somisitsego. O seke wa lebala gore ge moalafi a etla, o mmotse gore o somisitse maano afe. Ke a feng a go thusitseng. Sala gabotse go fihlela re kopana. Lokologa, lokologa, somisa mano. Se lebale mano a gago, o seke wa sarakanya ke setlhabi. O na le mano, a somise, a somise, o kgonne, wa kgona, o sekgoni.

APPENDIX N

Illness - The Patient's Perspective

The word illness is based on what you feel when you are sick or when you visit a doctor, a herbalist, a naturopath, or any health provider, seeking help. There is a distinction between cancer pain and illness. Cancer is conceived as a disease that may affect organs of the body or one's blood system. On the other hand pain is a symptom of a disease. Your response to cancer pain or any other disease which may be affecting you at any point in time is considered to be an illness. Illness consists of how you perceive or view yourself in relation to your disease, diagnosis, symptoms or pain. Helman (1990) mentions the following as varieties of illness :

1. Perceived changes in bodily appearance, such as loss of weight, changes in skin colour, sunken eyes, or hair falling out.
2. Changes in regular body functions such as urinary frequency, heavy or irregular menstrual periods, or menstrual periods after menopause.
3. Unusual bodily emissions, such as blood in the urine.
4. Changes in the functions of limbs, weakness, clumsiness, paralysis.
5. Unpleasant physical symptoms such as headache, abdominal pain, fever or shivering.

6. Changes in the five major senses, such as deafness, blindness, lack of smell, less taste sensation.
7. Excessive or unusual emotional states, such as anxiety, depression, nightmares or other worrying fears.
8. Behavioural changes in relation to others, such as marital or work problems.

Researchers have found that ill people ask themselves a number of questions. You may ask yourself what is the meaning of cancer. Why has it happened to me? Have I done anything wrong to deserve this? Has anyone caused me to be ill?

Most of you here today have experienced these abnormal changes. People are defined as ill when there is agreement between their perceptions of impaired wellbeing and the perceptions of those around them. In this sense, illness or your becoming ill involves others around you, for example, doctors, nurses and family members.

They become concerned about how you feel. Your family may be concerned about what would happen if nothing was done about your illness, what should they do, and whom should they turn to for further help. They may feel obliged to care for you while you are ill. They see you as sick and may suggest that you become hospitalised, therefore allowing you to withdraw from your everyday adult responsibilities, and at the same time showing concern about you.

In other words you are likely to receive much attention since your illness matches other people's view on illness I am going to be with you for some time to give you all the support and

attention you need. It has been found that sharing information about your pain and illness with someone who cares about your well-being helps to reduce your pain, with the result that you will feel much better and less ill or even fine after sharing your concerns. Your concerns may involve your family, your spouse, your pain, your recovery, and all other things which you consider to be of importance to you.

I will in return do my best to help you cope with pain, by being there for you, listening to what you have to tell me and acknowledging your concerns. I will also be encouraging you not to worry too much, as worry won't help, but rather to see yourself as fortunate as you have people with special skills, for example, doctors and nurses, who are there whenever you need them to assist you with your problems. Other people in the past have made use of their skills to get better, to get over their pain.

I am unable to answer some of your questions about your pain and illness. I will be calling upon the nurses and doctors to give you the necessary information.

Furthermore I will be interested in finding out the following:

- (i) How you explain your pain and illness. What are its likely effects on yourself, on other people, family and friends? And why it has happened to you.
- (ii) What advice have you been given by family, friends, neighbours, healers, and doctors? Has it worked?
- (iii) What would happen if nothing was done about your pain and illness?

APPENDIX N

Illness : The Patient's Perspective (Setswana)

Lefoko le bolwetsi le bolela ka fa o ikutlwang fa o lwala kgotsa o etela ngaka, ngakaya meriana (herbalist, naturopath) kgotsa mongwe fela wa ba lofapha la pholo/kalafi. Go na le pharologanyo fa gare ga kankere, botlhoko le bolwetsi. Kankere e tsewa jaaka bolwetsi jo bo amang dithwe tsa mmele kgotsa madi a motho. Ka fa go je lengwe botlhoko ke tshupo/sekao sa bolwetsi. Bolwetsi bo akaretsa ka fa o bo bonang (tsayang) kgotsa o iponang (temogang) ka teng mabapi le bolwetsi, ditshupo kgotsa botlhoko. Helman (1990) o bolela tse di latelang mabapi le bolwetsi:

1. Diphetogo tse di lemogwang/bonwang mo tebegong ya mmele, jaaka go latlhegelwa ke boima jwa mmele, diphetogo mo mmaleng, matlho a wetseng le go wa ga moriri.
2. Diphetogo mo go direng go go tlwaelegileng ga dithwe tsa mmele jaaka go ntsha metsi kgapetsa, go tlhatswa ga bosadi go go feteletseng (heavy menstruation) kgotsa go go seng ka tlwaelo, kgotsa go mensa (menstruate) morago ga go kgaotsa lobaka (menopause).
3. Go ntsha madi le motlhapo go go sa tlwaelegeng.
4. Diphetogo mo go direng ga maoto le matsogo jaaka go nyema moko, go palelwa ke go tshwara le go tsamaya, go swa ditho (paralysis).

5. Ditshupo tse di bosula jaaka go opelwa ke tlhogo, botlhoko mo mpeng, go gotela/fisa le go sitwa (tshabelwa ke serame).
6. Diphetogo mo dikarolong tse dikgolo tsa kutlo jaaka bosusu (deafness), bofofu (blindness), go sa dupeng sentle (lack of smell), go tlhoka go latswa sentle (less taste sensation).
7. Go tshwenyega maikutlo jaaka letshogo (anxiety), maikutlo a a ko tlase (depression), ditiro tse di tshosang kgotsa nngwe fela ya go tshwenyega kgotsa tshoga/tshabo.
8. Phetogo ya maitsholo/maitshwaro mabapi le tiro kgotsa mo lenyalong.

Babatlisisi (researchers) ba lemogile fa batho ba ba lwalang ba ipotsa dipotso tse mmalwa. O ka ipotsa gore bokao jwa kankere ke eng? Ke goreng go ntiragaletse? A ke dirile phose nngwe go tshwanelwa ke kotlhao e? A gona le mongwe yo o ntwatsang/dirileng gore ke lwale?

Bontsi jwa lona fano, bo na le maitemogelo a diphetogo tse di sa siamang tse. Batho ba tlhaloswa ba lwala fa go na le tumalano magare a ka fa o bonang bothata le ka fa ba bangwe ba bo bonang. Ka ga jalo, bolwetsi kgotsa go lwala ga gago go akaretsa ba bangwe, jaaka dingaka, baoki le ba losika.

Ba tshwenyega ke ka mokgwa o ikutlwang. Ba losika ba ka tshwenyega ga nagana se se ka go diragalelang fa o sa bone

thuso, ke eng se se ka dirwang, ke mang yo o ka ba tlhagang thuso.

Ba ka bona ba tshwanela ke go go tlhokomela fa o lwala. Ba go bona jaaka molwetsi, ka jalo ba tlhagisa fa o tshwanetse go ya bookeelong, ka jalo ba go letla go ikgogela morago mo maikarabelong a gago, gape ba supa tshwenyego/tlhobaelo ka wena.

Ka mantswe a mangwe, o ka amogela tlhokomelo e ntsi ka ntlha ya fa bolwetsi jwa gago bo bonwa jaaka bolwetsi ba batho ba bangwe, mo bolwetsing ke tla nna le wena lobakanyana ke go fe tlhotloetso (support) le tlhokomelo e o e tlhokang.

Go lemogilwe gore go buisa ka kitso (information) ya botlhoko jwa gago le bolwetsi le motho yo o kgathalelang pholo ya gago go ka thusa go fokotsa botlhoko, mo bofelong wa ikutlwa o le botoka. Tlhobaelo ya gago e ka akaretsa ba losika/lolwapa, molekane, botlhoko jwa gago, le pholo, le tse tsotlhe tse o bonang di le botlhokwa mo go wena.

Ke tla leka bojotlhe go go thusa, go lepalepana le botlhoko le se se ka go tlhobaetsang, ke tla nna teng fa go tlhokega, go go reetsa le go amogela ditlhobaelo tsa gago. Gape ke go gakolola go leka go sa balabale ka pelo (worry) thata gonne go dira jalo go ka se thuse, mme bogolo go lemoga fa o le lesego fa go na le batho ba ba nang le kitso, jaaka dingaka le baoki ba ba leng foo fa o tlhoka thuso mo mathateng a gago.

Ga ke kgone go araba dipotso dingwe ka botlhoko le bolwetsi jwa gago ka jalo ke tla bitsa dingaka le baoki go go neela ka kitsiso e e lebaneng/tlhokegang.

Go ya pele ke rata go itse ka tse di latelang:

(i) O ka tlhalosa jang bolwetsi jwa gago? Di ka go ama ka mofuta ofe, di ka ama jang batho ba bangwe, ba losika le ditsala? Ke goreng e go diragaletse?

(ii) Ke dikgakololo tse feng tse o di filweng ke ba losika, ditsala, baagisanyi le dingaka? A dikgakololo tse di nnile le maungo?

(iii) Go ka diragalang fa o sa fiwe thuso ka botlhoko le bolwetsi jwa gago?

APPENDIX N

Illness: The Patient's Perspective (Northern Sotho)

Lentswe le bolwetsi le ra gore a ikwa bjang ge o lwala goba ge o etela ngaka, herbalist (ngaka ya meriana), naturopath goba mongwe wa ba dikalafi. Go nale phapang ma gare ga botlhoko bja kankere goba botlhoko bja bolwetsi. Kankere e tsewa bjale ka bolwetsi bjo bo amago ditso tsa mmele goba madi a motho. Mo go le lengwe, botlhoko ke sesupo sa gore o a lwala. Bolwetsi bo akaretsa ka moo o bo bonago goba o bo tseyago ge o lwala, ditshupo goba bjona botlhoko. Helman (1990) o bolela tse di latelago mabapi le bolwetsi:

1. Diphetogo tse di lemogwang bonwago mo mmeleng, bjale ka go latlhegelwa ke boima bja mmele, diphetogo mo mmaleng, mahlo a go subelela le go wa ga moriri.
2. Diphetogo mo go direng go go tlwaela gilego ga ditso tsa mmele bjalo ka go ntsha meetse leboelela, go bona kgwedi go go feteletsego mo go sa tlwaelwago, goba go bona kgwedi mola motho a setse a feditse go ya kgwedding.
3. Go ntsha motlhapo le madi mo go sa tlwaelwago.
4. Diphetogo mo go someng ga maoto le matsogo bjalo ka go nyama mooko go palelwa ke go tshwara le go sepela le go hwa ditso tsa mmele.
5. Ditshupo tse di sego bose bjalo ka go opjwa ke hlogo, botlhoko mo mpeng, go (tsha bela) ke phiso le phefo.

6. Diphetogo mo dithong tsa mmele bjalo ka go se kwe gabotse, go se bone gabotse, go se dupe gabotse le go tlhoka tatso (less taste sensation).
7. Go tshwenyega maikutlo bjalo ka letshogo, moya goba maikutlo a fase, ditiro tse di tshosago goba dilo tsa go tshwenya, le gobalabala.
8. Diphetogo tsa maitshwaro mo mosomong goba lenyalong.

Batsebi (researchers) ba humane gore batho ge ba lwala ba ipotsisa dipotsiso tse dintshi. O ka ipotsisa gore naa kankere ke eng? Ke ka lebaka la eng e swara nna? Naa e ka ba ke phositse kae gore ke be ke swarwe ke bolwetsi bjo. E ka ba go na le motho yo a ntshetsego morago gore ke be ke lwale. Bontsi bja lena gona mo, le bile le tsona diphetogo tse di sa lokago. Batho ba tlhaloswa ba lwala ge go na le tumelano magareng ga mokgwa wo ba bonago bothata le ka moo ba bangwe ba bo bonago ka gona. Ke ka mokgwa wo bolwetsi goba go lwala ga gago go akaretsa batho ba bangwe bjalo ka dingaka, baoki le meloko.

Ba tshwenyega ke mokgwa wo wena o ikwago ka gona. Meloko goba balafa ba ka tshwenywa ke se se ka gotlhagela ge o ka se thusege, le gore naa ba ka go thusa bjang? Ba ka bona e le tshwanelo ya bona gore ba go hlokomele ge o lwala. Bo go bona o le molwetsi, ke ka lebaka leo bo bonago le tshwanelo gore o ye bookelong, o ikgogele monago mo ditirong tsa ka mehla e bile ba bontsha le tshwenyego ka wena.

Ka mantswe a mangwe, o ka humana tlhokomelo ye ntshi ka ge bolwetsi bja gago bo bonwa bjale ka bolwetsi ke batho ba bangwe. Mo bolwetsing, jke tla dula le wena sebakanyana ke go fe legora (support) le hlokomelo ye o e nyakago.

Go lemogilwe gore go bolela ka bohloko le bolwetsi bja gago le motho yo mongwe yo a tshwenyegago ka wena, go thusa go fokotsa bohloko, mafelelong wa ikwa o le kaone kudu. Matshwenyego a gago a ka akaretsa ba lapa la gago, moratiwa wa gago, bohloko bjo o bo kwago, go fola ga gago, le dilo kamoka tse bohlokwa go wena.

Ke tla leka ka maatla go go thusa, gore o kgone go lebana le bohloko bjo, ka go ba le wena, ke tla theeletsa se o tla se bolelago, e bile ke tla amogela dipelaelo tsa gago. Ke tla go thusa gore o se balebale ka pelo, ka ge gobalabala go sa busetse selo, epja ke tla dira gore o ipone bjale ka wo mongwe wa ba mahlatse ba tsebo bjale ka dingaka, le baoki ba ba lego gona ge o ba nyaka go go thusa ka mathala a gago. Batho ba bangwe le bona, ba somisitse tsebo ya batho ba gore ba be kaone mo bohlokong bja bona.

Ga ke kgone go araba dipotsiso tse dingwe mabapi le bohloko le bolwetsi bja gago. Ke tla bitsa dingaka le baoki go hlalosetsa ka tshwanelo.

Go tswela pele ke rata go tseba ka tse di latelago:

- (i) O ka hlalosa bjang bolwetsi bja gago? Bo ka go ama bjang, le batho ba bangwe, metswalle le bagwera ba gago? Ke ka lebaka la eng bo tlhagela wena?

(ii) Ke maele a ma fe a o a filwego ke metswalle ya gago,
baagisane le dingaka? Naa maele a a ile a soma?

(iii) Go be go ka diragalang ge nkabe o sa fiwa thuso ka
botlhoko le bolwetsi bja gago?

APPENDIX O

Talking Things Out

As you learn about illness and pain and their impact on you, your family and friends, it is extremely important that you feel free to express your feelings and emotions. The intervention process is a time for healing and recovery, a time to grow stronger and to let go. Letting go, is making the decision to act in your own interest, to think about your needs, your pain. In order to meet your needs, you have to take responsibility for yourself and the direction of your life and pain.

People outside the family, friends, co-workers, and neighbours can make a powerful impact on controlling your pain. Reach out, never feel afraid to ask for help. Let go of fear, anger, guilt, sadness, and grief. If you need to talk to someone, talk. If you need to cry, cry. If you need to be with someone, don't be alone. If you need some time alone, don't feel that you have to be with others all the time. Act on your feelings. Take care of your needs, love yourself.

Be patient. Discovery takes time. Take each day as it comes, realise that the bad times do not last.

Be aware of the real facts of your pain, of the steps you need to take. You need to move away from the past into the healthy present.

Don't worry about failure. Failure can only be defined as doing nothing, allowing the disease and pain to continue to swallow everything you value and everyone you love.

If you do talk about your pain, you are doing something, even if talking does not result in complete pain relief, you are taking the initiative and pulling away from the power of pain and illness. That in and of itself, is success.

Overcoming the doubts and fears that come from living with pain takes time, understanding and persistence. But these doubts can be overcome, they must be overcome if you are to escape the pain of the past and the fear of the future and begin to live in the here and now. Give up labelling your pain and live best as you can. Pain is neither bad nor good. It's just the way it is, it will get better with your help and the help that others give you.

I am going to be with you for some time to offer you help and support. To listen to your problems. You can call on me at any time during the day if you need me.

APPENDIX O

Talking things out (Setswana)

Fa o ntse o ithuta ka bolwetsi le botlhoko, ka fa di go amileng ka teng, ba losika le ditsala, go botlhokwa go kgona go bua ka maikutlo a gago. Tsela ya kalafi ke nako ya go nna botoka go ya ko pholong, ke nako ya go kokotlela, le go amogela. Nako ya go amogela go tseya tshwetso le go dira ka fa go kgatlang wena, go nagana ka ditlhokego tsa gago le botlhoko. Go kgona ditlhokego tsa gago, o tshwanetse go tsaya maikarabelo a gore o leba kae ka bophelo le botlhoko jwa gago.

Batho ba e seng ba losika, ditsala, badiri-mmogo le baagisani ba ka nna le kgatelelo e kgolo mo go kganeleng/thibela botlhoko. Ba fitlhelele, o se tshabe go kopa thuso. Letlelela tshabo/letshogo, bosilo, letswalo, kutlo-botlhoko le telo go go tlogela. Fa o batla go nna le mongwe, se nne o le esi. Fa o tlhoka nako go nna o le esi, se pateletsege go nna le batho ka metlha. Diragatsa maikutlo a gago. Diragatsa ditlhokego tsa gago. Ithate/itshupetse lerato.

Nna pelo telele. Go ikitse go tsaya nako. Tsaya letsatsi lengwe le lengwe jaaka le tla, itse fa dinako tsa bothata di sa nnele ruri.

Lemoga dintlha tsa botlhokwa tsa botlhoko jwa gago, le ditsela tse o tshwanetseng go di tsaya. O tlhoka go tswa mo dinakong tse di fitileng mme o tsene mo bophelong jo boswa.

Se tshwenyega ka go retelelwa/palelwa. Go pala go ka tlhalosiwa ka go sa direng sepe, go letla bolwetse le botlhoko

go tswelela ka go metsa tsotlhe tse o di tlhokang le ba o ba ratang.

Fa go direga gore o bue ka botlhoko jwa gago, gona o dira sengwe, le fa go bua go sa fedise botlhoko gotlhelele, o tsaya matsapa le go simolola go ikgoga mo maatleng a botlhoko le bolwetsi. Seo ke phitlhelelo ka bo sona.

Tlholo ya dikabakanyo le lotshogo tsa go tshela ka botlhoko di tsaya nako, go tlhaloganya le boitshoko. Fela dikabakanyo di kgonega go tlholwa, di tshwanetse go tlholwa, fa o ka falola botlhoko jo bo fetileng le letshogo je le tlang, mme wa simolola go tshela jaanong.

Tlogela go taya/raya botlhoko jwa gago maina, mme o iphe botshelo jo bo kgonegang ka fa o ka kgonang. Botlhoko ga bo a siama e bile ga bo monate. Bo fela jaaka bo ntse, bo tla nna botoka ka thuso ya gago le thuso ya ba bangwe.

Ke tlile go nna le wena nakonyana go go neela thuso. Go reetsa mathata a gago. Oka mpitsa nako nngwe le nngwe mo motshegareng fa o ntlhoka.

APPENDIX O

Talking Things Out (Northern Sotho)

Ge ntse o ithuta ka bolwetsi le botlhoko, ka moo di go amilego ka gona, ba lapa la gago le ba geno, go kaone go lokologa le go bolela ka moo o ikwago ka gona. Tsela ya kalafo ke nako ya go loka le go fola, ke nako ya go kokotlela le go amogela. Nako ya go amogela ke nako ya go tsea magato ka moo o tla ikgahlago, go nagana ka dinyakwa tsa gago le bjona bohloko. Go re o kgone go humana dinyakwa tsa gago, o swanetse go rwala maikarabelo a gore o leba kae ka bophelo le bohloko bja gago.

Batho bao e sego ba geno, bagwera, basomi mmogo le baagisani ba ka ba le khuetso e kgolo go thibele bohloko. Fihla go bona, o se tshabe go kgopela thuso go bona. Tlogela go tshaba, go befelwa, go itshola, go kwa bohlo ko le go nyama. Ge o nyaka go ba le e mongwe go bolela, o bolele. Ge o nyaka go lla, olle. O se dule o le teye, e ba le mongwe. Ge o nyaka go dula o e teye metsotswana, dira bjalo. Somisa maikutlo a gago. Hlokomela dinyakwa tsa gago, ithate.

E ba le kgotlello. Go itemoga go tseya nako. Tsea letsatsi le lengwe le le lengwe bjale ka ge le etla, dinako tse dimpe ga di tlele ruri.

Lemoga dilo tse bohlokwa tsa bohloko bja gago, le ditsela tse o swanetsego, tse di fitilego, gomme o tsene mo bophelong bjo boswa.

se tshwenyeye ka go palelwa. Go palelwa go hlaloswa gore ke go se dire selo, go dumelela bolwetsi le bohloko go tswela pele go metsa dilo kamoka tsa gago le bao o ba ratago.

Ge o ka bolela ka bohloko bja gago, gona o dira se sengwe, le ge go bolela go sa nape go fodise, o tsea magato a go thoma go ikgoga go tswa maatleng a bohloko le bolwetsi. Gona go tsena o etswa ke go tswelela gabotse.

Go feketsa dipelaelo le letshogo leo le tlogo le bohloko go tsea nako, kwisiso le kgotlelelo. Dipelaelo tse di ka fenywa, di swanetse go fenywa ge o nyaka go lebala bohloko bja bo fetilego le letshogo le le tlogo wa thoma go phela bophelo bja bjale. Tlogela go fa bohloko bja gago maina, gomme a iphe bophela bjo bo kgonagago ka moo o kgonago. Bohloko ga se bo loke e bile ga bo bose. Bo ka moo bo lego ka gona, bo ka ba kaone ka thuso ya gago le thuso ya ba bangwe.

Ke tlile go dula le wena nakonyana go go fa thuso. Go theeletsa mathata a gago. O ka mpitsa nako ye nngwe le e ngwe ge o nnyaka motshegare.