

**THE EFFECTIVENESS OF COGNITIVE-BEHAVIOUR THERAPY IN IMPROVING
PSYCHOLOGICAL ADJUSTMENT TO SPINAL CORD INJURY:
A REVIEW OF THE LITERATURE**

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DECLARATION

I, the undersigned, declare that the work contained in this assignment is my own original work and has not previously, in its entirety or in part, been submitted at any university for a degree.

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ABSTRACT

The traumatic nature of spinal cord injury (SCI) imposes major and permanent life changes that necessitate physical, social and vocational adjustments for the individual, as well as placing strain on the family. The importance of psychological aspects of adjustment and rehabilitation has progressively become recognised as an integral part of facilitating a higher quality of life for individuals and their families living with SCI. While it has been established that psychological disturbance is not an inevitable long-term consequence of SCI, researchers have found that a proportion of this population has marked difficulty adapting psychologically to their new lifestyle and the challenges it poses. It has been found that the SCI population has an increased risk for divorce, substance abuse, self-neglect and suicide. In the mid-1990's, researchers involved in SCI rehabilitation started developing cognitive-behaviour therapy (CBT) interventions to assist individuals with their psychological adjustment to the traumatic injury. Lazarus and Folkman's (1984) cognitive theory of stress and coping has been the theoretical grounding for some of these interventions. The primary objective of this literature review is to ascertain the effectiveness of CBT in assisting individuals with their psychological adjustment to SCI and to make recommendations for future research in this area.

OPSOMMING

Die traumatiese aard van 'n spinale koord besering (SKB) veroorsaak 'n beduidende en permanente lewensverandering, wat fisieke-, sosiale- en werksaanpassing vir die individu verg, asook spanning op die familie plaas. Die belangrikheid van sielkundige aspekte rakende aanpassing en rehabilitasie word toenemend herken as 'n integrale deel in die fasilitering van 'n hoër kwaliteit van lewe vir die individue en hulle families wat lewe met 'n SKB. Alhoewel daar gevind is dat sielkundige versteuring nie 'n noodwendige langtermyn gevolg van 'n SKB is nie, het navorsers wel gevind dat 'n gedeelte van die populasie beduidende sielkundige aanpassingsprobleme ervaar ten opsigte van hul nuwe lewenstyl en uitdagings. Daar is gevind dat die SKB populasie 'n verhoogde risiko loop vir egskeidings, substansmisbruik, self-verwaarlosing en selfmoord. In die middel van die 1990's, het SKB- en rehabilitasie-navorsers kognitiewe-gedragsterapie (KGT) intervensies ontwikkel om individue te help met sielkundige aanpassing na 'n SKB. Lazarus en Folkman's (1984) se kognitiewe teorie oor stres en streshantering, het die teoretiese grondslag gevorm vir sommige van hierdie intervensies. Die primêre doel van hierdie literatuuroorsig is om die effektiwiteit van KGT te bepaal in die ondersteuning van individue met sielkundige aanpassing na SKB, en om voorstelle te maak oor toekomstige navorsing wat met hierdie onderwerp verband hou.

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1. INTRODUCTION

Spinal cord injury (SCI) resulting from trauma imposes major and permanent life changes and those injured are faced with many challenges that begin in hospital rehabilitation (Richards, Kewman, & Pierce, 2000). Rehabilitation centres specialising in SCI primarily focus on the physical rehabilitation of the patient, aiming to facilitate a lifestyle that can help the person be as mobile and independent as possible.

Before discussing the traditional course of rehabilitation, it is important to briefly define SCI and the specific injury that this research assignment will focus on. SCI is damage to the spinal cord that results in a loss of function such as mobility or feeling (Spinal Cord Injury Resource Centre, date unknown). Frequent causes of damage are trauma (such as motor vehicle accidents, gunshots or sporting accidents) or disease (such as polio or spina bifida). The spinal cord does not have to be severed in order for a loss of functioning to occur. In fact, in most people with SCI, the spinal cord is intact, but the damage to it results in loss of functioning. The level of the lesion determines the effect of the trauma and the extent of the injury determines the functional outcome. Paraplegia describes paralysis of the trunk and lower extremities and quadriplegia (also known as tetraplegia) describes paralysis of the upper extremities, trunk and lower extremities. This research assignment will focus only on SCI resulting from trauma, where the injury may result in paraplegia or quadriplegia.

A number of additional medical complications such as incontinence, the experience of pain and impaired sexual functioning usually accompany SCI (Craig, Hancock, Dickson, Martin, & Chang, 1990). The patient in hospital rehabilitation is involved in physical therapy and as they work towards becoming mobilised in a wheelchair, emphasis is placed on educating them regarding personal hygiene

and care, vocational, and social adjustments. The ultimate goal of rehabilitation is to prepare the patient for discharge, as reintegration into the community after months of inpatient care can be difficult (Meyers, 2000).

There have been many developments in medical care and improving life expectancy for people with SCI (Richards et al., 2000). The importance of psychological aspects of adjustment and rehabilitation has progressively become recognised as an integral part of facilitating a higher quality of life for people and their families living with SCI. Authors such as Craig et al. (1990) highlighted that interventions (particularly cognitive-behaviour therapy [CBT]) aimed at enhancing psychological adjustment to SCI, were necessary to help reduce psychological disruption experienced by individuals with SCI.

2. PSYCHOLOGICAL ADJUSTMENT TO SPINAL CORD INJURY

Most research relating to psychological adjustment and SCI has been done within one year of injury onset. During the first few months following the traumatic injury, the person injured goes through a multitude of emotional responses including sadness, fear, anger, hostility and withdrawal (Richards, 2000). More dated rehabilitation literature describe stage theories for this process, proposing that people go through predictable (although not strictly sequential) emotional and cognitive reactions to their SCI. Treischmann (1988) highlighted how researchers have challenged the stage theories after finding that there is such a variability in the response to SCI. The population is not homogeneous and everyone responds in different ways to a traumatic injury and its physical, vocational and social consequences.

Psychological disturbance is not an inevitable long-term consequence of SCI (Craig et al., 1990; Kennedy & Rogers, 2000). However, as will be discussed in this chapter, researchers have found that a proportion of the population with SCI has marked difficulty adapting psychologically to their new lifestyle and the challenges it poses. There are increased risks for divorce, substance abuse and self-neglect in this population (DeVivo, Black, Richards, & Stover, quoted in Craig, Hancock, Dickson, & Chang, 1997). Suicide rates are also reportedly higher for individuals with SCI (Stewart, 1988). Colley and Faul (1997) reported that higher suicide rates exist in South Africa possibly due to the lack of community resources for SCI, not only physically, but also psychologically.

2.1 Definition of adjustment

According to an early definition by Lazarus (1969), adjustment can be viewed as consisting of psychological processes that an individual employs in order to manage or cope with various demands or pressures. Marais (1993) points out that when an individual is faced with a crisis, he or she will make use of cognitive and behavioural response patterns in order to reduce stress and attempt to implement problem-solving strategies. The idea is to gain homeostasis in all spheres of life. After the crisis of an SCI, the individual is faced with the reality of major and permanent physical losses. Homeostasis as such may not be as it was pre-morbid to the traumatic injury as the individual will need to learn to make adaptations in their lifestyle to become as mobile and independent as possible. They will also need to make sense of this new way of being on a cognitive and emotional level, and the reality of “how I am now” may be difficult to accept (Treischmann, 1988). It is important to realise that “adjustment is not an endpoint, but a lifelong process of adaptation” (Richards, 2000, p. 85).

2.2 Depression and anxiety

Treichsmann (1988) and Craig et al. (1990) highlighted the need for researchers to do longitudinal studies focusing on the psychological adjustment to SCI, as it was felt that most literature at the time was based on the clinical impressions of the author and reports from rehabilitation staff. The literature showed discrepancies about the nature and prevalence of depression after SCI and whether depression was a necessary process for adjustment to take place (see Treischmann, 1988, for a full review). Some researchers believed that depression was inevitable and those individuals who did not report being depressed were thought to be in denial. Over the years, researchers began acknowledging that not all individuals become clinically depressed but an increased risk of developing psychological problems in this population seems to exist (Craig et al., 1990).

Most researchers use anxiety and depression as indicators for psychological adjustment to SCI. Research has shown that anxiety and depression found in the SCI population during their initial rehabilitation, is linked to the lack of predictability and sense of control they experience (Kennedy, Duff, Evans, & Beedie, 2003). Clinical impressions also indicate that they feel inadequate to cope with the future implications and challenges of the injury. Empirical research such as Hancock, Craig, Dickson, Chang, and Martin (1993a) has consistently found that depression is present in 20%-45% of individuals with SCI. Although these statistics are not generated from a South African population, they can be used as a tentative projection until statistics are produced locally.

While depressive behaviour is common and should be seen as appropriate following the realisation that the injury imposes functional losses and major changes in lifestyle, it should be time-limited (Richards, 2000). It is often difficult to assess for a major depressive episode when clinical signs such as sleep

disturbance, diminished energy, loss of appetite and decreased interest in sexual functioning can be a result of the medical complications following the injury.

Similar to the statistics of depression, research has shown that the SCI population also has an increased risk for anxiety (Kennedy & Rogers, 2000), with prevalence between 20% and 25% (Hancock et al., 1993a). In reviewing the literature, very little mention of post-traumatic stress disorder (PTSD) was found. While Richards (2000) noted that a small proportion of SCI cases presented with PTSD, no research could be found where empirical data showed the prevalence and consequences of PTSD in this specific population.

2.4 The impact of pain

Colley and Faul (1997) emphasised how the psycho-social impact of pain had directly or indirectly lead those with an SCI to report depression, low self-esteem, suicidal ideation and relationship problems. SCI patients with chronic pain become isolated as their social activity is limited and this has a negative impact on their quality of life. Cognitive-behavioural strategies for assessing SCI pain have been developed, along with treatment approaches (Umlauf, 1992). Richards (2000) argues that few well-controlled outcome studies exist for assessing the efficacy of treatment specific to an SCI population.

2.5 Locus of control, self-esteem and coping styles

Hancock, Craig, Tennant, and Chang (1993b) looked at the effects of SCI on perceptions of control, self-esteem and coping styles over the first year of SCI. They compared a group of individuals with SCI to a demographically matched able-bodied control group. Results after one year showed that the

SCI group perceived their life to be controlled externally, to have lower self-esteem and have more helpless and fatalistic coping styles compared to the controls.

Treichsmann (1988) regards locus of control as playing a powerful role in the process of adjustment to SCI. Those who perceive their behaviour as influencing outcome tend to be more active, less depressed, more productive and satisfied with life after discharge from the hospital. While there may be variability in responses, it does seem that those who make use of a more internal locus of control seem to cope better with the challenges of having an SCI (Craig et al., 1990; Lilliston, 1985).

Craig, Hancock, and Chang (1994) did a two-year follow-up on their results (Hancock et al., 1993b). Where most research at the time was done within one year of SCI onset, the study gave more insight into the more long-term psychological impact of SCI. Thirty-one subjects who were newly injured and mobile in a wheelchair, participated in the complete study. All participants were attending rehabilitation therapies, and had no head injuries or any pre-existing pathology. The control group consisted of able-bodied persons who matched the SCI group for age, sex, education and occupation.

The results did not change significantly compared to the initial research done over one year (Hancock et al., 1993b). Coping styles were very similar, with SCI participants adopting a more helpless and fatalistic coping style compared to the control group. Locus of control seemed to fluctuate over two years, and Craig et al. (1994) understood this trend in terms of the phases of rehabilitation the participants were involved in. Participants seemed to feel more helpless and uncertain about their future prospects during their first assessment, but may have increased their perception of control once they started preparing for leaving the hospital by the second assessment. Their re-introduction to the community and its associated challenges may have had a negative impact on participant's locus of control during the third assessment. The authors believe that once the SCI group began adapting to

their new lifestyles, they once again increased in confidence and consequently felt more in control of their lives.

What is significant from Craig et al.'s study (1994) is that it highlighted that time does not necessarily enhance adjustment to SCI. It seems that the small but significant proportion of this population experiencing psychological difficulties do so over several years after their injury.

3. COGNITIVE-BEHAVIOUR THERAPY

Since its development in the 1960's, CBT has established itself as one of the three major psychotherapeutic modalities, along with psychodynamic and behaviour therapy (Simos, 2002). The fact that researchers have placed considerable emphasis on "expressing concepts in operational terms and on the empirical validation of data" (Hawton, Salkovskis, Kirk, & Clark, 1989, p. 11) makes the therapy suitable to assess treatment effectiveness. While CBT is renowned for its positive outcomes in the treatment of depression and anxiety, it has expanded and proved its effectiveness in the treatment of most psychiatric disorders, including eating disorders, substance abuse and personality disorders.

This chapter will discuss the following aspects pertaining to CBT:

- **Ellis's (1962) rational-emotive therapy and Beck's (1964) cognitive therapy.** Ellis and Beck were the two main contributors to the development of CBT and although SCI researchers make no direct reference to these two theorists when discussing their CBT interventions, it is necessary to give an outline of each approach.

- **Lazarus and Folkman's (1984) cognitive theory of stress and coping.** This theory will be discussed in more detail as it was utilized in developing a CBT approach for an SCI population.
- **CBT developed for an SCI population.** The reasons for CBT being a treatment of choice in this population and individual versus group therapy will be discussed, followed by a look at the CBT approaches developed by SCI researchers.

3.1 Ellis's Rational Emotive Therapy

Ellis's rational emotive therapy (RET) assumes that people are at their most content when they establish goals for themselves and consciously strive to achieve these goals (Ellis & Dryden, 1987). Ellis viewed an individual as a rational being with the ability to evaluate reality rationally and irrationally. According to the ABC theory of RET, defective beliefs and irrational thinking styles result in negative affect and maladaptive behaviour (Foreyt & Rathjen, 1978). Individuals are said to make inferences about events, people or experiences. These inferences may be true or false, but it is the evaluation of their possible truth that is the focus in RET. It supposes that an activating event (A) in a person's life leads to a negative behavioural or emotional consequence (C) because it is acted upon by the person's belief (B) about that activating event (Ellis & Dryden, 1987). The goal of rational emotive behaviour therapy is to identify the irrational beliefs and thinking styles (B) that cause negative affect and maladaptive behaviour (C) as well as those that facilitate positive affect and adaptive behaviour.

3.2 Beck's Cognitive Therapy

Although Beck's therapy is similar to Ellis's RET in many respects, it was adopted more gradually but has become the most important of the cognitive approaches (Hawton et al., 1989). It proposes that

psychological distress is caused by an interaction of innate, biological, developmental and environmental factors (Kirk, 1989). Cognition does not cause psychological disturbance, but is intrinsic to it. Beck's theory is based on the information-processing paradigm and it is postulated that dysfunctional attitudes and life situations predispose individuals to bias their interpretations and inferences of an event (Kirk, 1989). Subsequently, emotion and behaviour are influenced by how an individual perceives a situation, not by the situation itself (Beck, Rush, Shaw, & Emery, 1979). Throughout childhood, an individual will develop certain beliefs about themselves, others and the world around them. Schemas are cognitive structures that develop and they can bias our interpretation of events in a consistent way, causing dysfunctional behaviour and emotions.

The basic goal of cognitive therapy is to correct the faulty information-processing by modifying the dysfunctional beliefs that are maintaining maladaptive behaviour and emotions. Therapeutic change occurs through cognitive, behavioural and affective channels (Kirk, 1989).

3.3 Lazarus and Folkman's cognitive theory of stress and coping

Lazarus and Folkman's (1984) transactional model proposes that an event is experienced as threatening or stressful depending on whether we take note of it and how we choose to appraise or interpret it. This theory of stress and coping is seen as transactional as the stress outcome is the result of a dynamic and mutually reciprocal relationship between the individual and the environment. Stress will occur when the individual appraises an event as being too overwhelming for his or her resources and threatening his or her well-being (Lazarus & Folkman, 1984).

The theory identifies cognitive appraisal and coping as the two processes having an effect on stressful person-environment relationships and their outcomes. The two main types of cognitive appraisals

include primary appraisal and secondary appraisal. Primary appraisal is an initial evaluation of an event where an individual decides whether it is irrelevant, relevant but not threatening, or stressful. Secondary appraisal is a “complex evaluative process” (Lazarus & Folkman, 1984, p. 35) and refers to the individual’s evaluation of his or her ability to deal with an event. It comes into play once the individual primarily appraises an event as stressful and he or she must now evaluate coping resources and options for dealing with the stress. Reappraisal occurs after the first two appraisals and can be understood as feedback that may lead to changes in primary and secondary appraisals.

In the case of an individual sustaining an SCI, such an event will easily be primarily appraised as stressful with its major physical, social and vocational consequences. The goal for therapy based on this theory of stress and coping would be to alter appraisals that are negative and focus on implementing and reinforcing productive coping strategies.

Lazarus and Folkman (1984) view coping as “constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). Lazarus (1999) emphasises that coping is a process and different coping strategies can be used at different times during a stressful event. Emotion-focused coping and problem-focused coping influence each other throughout the stressful encounter. Emotion-focused coping is directed at regulating stressful emotional responses using different strategies including avoidance, selective attention, making positive comparisons and enforcing positive value from negative events. Some of the strategies are very similar to reappraisal where threat is diminished by changing the meaning of the situation. Lazarus (1999) explains: “when we reappraise a threat, we alter our emotions by constructing a new relational meaning of the stressful encounter” (p. 116).

Problem-focused coping is similar to problem-solving and is directed at managing or altering the problem causing the distress. Kahn et al. (quoted in Lazarus & Folkman, 1984) identify two major groups of problem-oriented strategies, namely problem-solving skills and self-directed strategies. Problem-solving skills are directed primarily on the environment and involve “defining the problem, generating alternative solutions, weighing the alternatives in terms of their costs and benefits, choosing among them, and acting” (p. 152). Self-directed strategies are directed inward at “motivational or cognitive changes such as shifting the levels of aspiration, reducing ego involvement, finding alternative channels of gratification, developing new standards of behaviour or learning new skills and procedures” (Kahn et al., quoted in Lazarus & Folkman, 1984, p. 152).

3.4 CBT tailored for an SCI population

Simos (2002) noted how CBT is continually evolving and new theoretical formulations and techniques are being developed. The therapy is also being tailored for different populations and their specific needs and problems. In the mid-1990’s, researchers involved in SCI and rehabilitation started developing CBT interventions to assist individuals with their psychological adjustment to the traumatic injury.

In reviewing the literature on outcomes-based research assessing the effectiveness of CBT in an SCI population, two main groups of authors have been identified. The first group includes Ashley Craig and Karen Hancock as the principle authors (Craig, Hancock, Chang, & Dickson, 1998a; Craig, Hancock, & Dickson, 1999; Craig, Hancock, Dickson, & Chang, 1997; 1998b). The second group has Paul Kennedy as principle author (Kennedy, Duff, Evans, & Beedie, 2003; King & Kennedy, 1999). Both groups of authors implemented a group-based intervention. The nature of their CBT approaches and their theoretical grounding will be discussed in this chapter, while their empirical research and its

findings will be discussed in detail in the following chapter. Before looking at their CBT approaches, the reasons for CBT as a treatment of choice for SCI and individual versus group therapy will be discussed.

3.4.1 Rationale for CBT to be treatment of choice with an SCI population

As mentioned earlier, CBT is renowned for its empirical research and positive outcomes for the treatment of most psychiatric disorders, particularly depression and anxiety disorders (Simos, 2000). Among other authors, Richards et al. (2000) emphasised how didactic and skills-based interventions are best suited to an SCI population during their rehabilitation. While it is important to recognise that the population is heterogenous and to steer away from stereotypes, Craig et al. (1997) found that their clinical experience indicates that the population is more “action-oriented” (p. 35). It is believed that those with SCI would prefer an intervention that focuses more on skills and testing those skills in a group setting, rather than more introspective psychotherapy. CBT stands out as a therapeutic approach with an emphasis on skills and exercises, but without ignoring the emotional aspects of therapy that can bring about personal growth and introspection. In reviewing the literature, it does not seem that any other psychotherapeutic modality has been researched within the SCI population. There is mention of group counselling including educational and vocational training and skills training (Richards et al., 2000), but as Treischam (1988) argues, there is no empirical research on the treatment effectiveness and outcomes. With CBT’s focus on empirical findings, it makes it even more suitable for this purpose.

3.4.2 Individual versus group therapy

One of the main reasons for implementing a group-based intervention by Craig et al. (1997, 1998a, 1998b, 1999) is that it is more cost-effective. In South Africa, where resources for SCI rehabilitation

are limited, a group-based intervention does seem more viable. King and Kennedy (1999) conducted qualitative interviews with participants in their research and feedback showed that they valued the fact that the intervention was group-based. Participants reported that the sharing of experiences and discussing different aspects of their difficulties with people who were going through the same situation was particularly helpful.

Salhoot (quoted in Treischmann, 1988) believes that a group intervention for people with SCI offers the therapist two advantages. Firstly, the therapist can sensitise to the feelings and problems of the group members more quickly than in individual therapy; and secondly, the therapist has direct access to the interpersonal functioning of each member that would largely be lost in individual therapy. However, Craig et al. (1997) acknowledge that individual therapy should bring about the same outcome as a group intervention, but this has not been researched to date. Richards et al. (2000) are of the opinion that a group intervention may be more suitable during rehabilitation, while individual therapy may be indicated post-discharge if the individual is still experiencing adjustment difficulties.

3.4.3 The Craig, Hancock and co-workers group

While the authors have developed a comprehensive treatment manual, it was not available for inspection when doing the present research assignment. It is therefore difficult to discuss in detail the specific theoretical underpinnings of the group-based CBT approach developed by Craig et al. (1997, 1998a, 1998b, 1999). The intervention includes components that address anxiety, depression, self-esteem, assertion, sexuality and family relations. The programme is conducted over ten weekly sessions (approximately 1.5 to 2 hours each) in small groups of four to five members. Craig et al.'s (1997) clinical experience indicates that SCI patients are more "action-oriented" (p. 35) and prefer an intervention that is skills-based rather than insight-oriented. The components of the intervention

include: relaxation techniques such as progressive muscle relaxation, visualization techniques and self-hypnosis (Craig et al., 1997). Cognitive restructuring is also an important part of the intervention programme.

The programme also focuses on social skills and assertiveness training, with role-plays and video feedback during group sessions. Education on sexuality includes discussing alternatives and typical problems encountered with SCI such as body image and sexual capabilities (Craig et al., 1997).

3.4.4 The Kennedy and co-workers group

King and Kennedy (1999) developed a brief group-based psychological intervention that was aimed at “improving psychological adjustment and enhancing adaptive coping following SCI” (p. 5). The intervention is called Coping Effectiveness Training (CET) and is grounded in Lazarus and Folkman’s (1984) cognitive theory of stress and coping. The effectiveness of CET was originally assessed with groups of HIV-positive and HIV-negative homosexual men in a controlled outcome study by Chesney and Folkman (quoted in Kennedy et al., 2003). The study found that CET improved the treatment group’s use of more positive coping strategies, and at six weeks follow-up, there was a significant decrease in measures of depression and an increase in measures of positive morale in comparison to the control group. King and Kennedy (1999) piloted a study assessing the effectiveness of CET, by developing the intervention for a SCI population. The pilot study (King & Kennedy, 1999) and further research (Kennedy, et al., 2003) to extend the findings will be discussed in more detail in the following chapter.

A treatment manual is available from the authors, but unfortunately was not available for this research assignment. The research articles (Kennedy et al., 2003; King & Kennedy, 1999) provide only limited

information on the exact underpinnings of Lazarus and Folkman's (1984) cognitive theory that is used in the development of CET. The patients are guided on choosing coping strategies and how to apply them.

The authors emphasize that CET aims to educate patients in appraisal skills and general cognitive behavioural skills, but they do not go into detail about the specific nature of the skills. However, Kennedy et al. (2003) maintain that the fact that the intervention is grounded in theory "adds structure to the skills taught and aids interpretation of the therapeutic effects found" (Kennedy et al., 2003, p. 43). They criticise the work of Craig et al. (1997) on its lack of theoretical underpinnings and feel that this is probably why their research failed to find significant improvements in levels of anxiety and depression after their group-based CBT intervention.

King and Kennedy (1999) included the following principal components in the CET programme:

- a) appraisal training
- b) cognitive-behavioural coping skills training
- c) strategies for choosing an adaptive match between appraisal and coping skills
- d) obtaining and maintaining social support. (p. 8)

The CET intervention is run in small groups of six to nine people and consists of seven bi-weekly sessions lasting approximately 60-75 minutes. An experienced psychologist trained in the treatment protocol conducts the groups and the group format consists of structured discussion and practical exercises. Kennedy et al. (2003) provide a brief session by session treatment summary as follows:

The concept of stress is introduced in the first session and attempts are made to normalize stress reaction. The need to develop the ability to think critically about how one appraises and copes with situations is also emphasized. The second session covers appraisal skills and the third

session problem-solving, which includes working through several scenarios commonly experienced by people with an SCI. In the fourth session, the connections and distinctions between thoughts, feelings and behaviour are examined with the inclusion of work on pleasant activity scheduling and relaxation. Session five is concerned with increasing awareness of negative assumptions, thoughts and expectations and how to challenge them. The final two sessions describe the metastrategy for choosing appropriate ways of coping and increasing social supports. (p. 45-46)

4. EFFECTIVENESS OF CBT IN IMPROVING PSYCHOLOGICAL ADJUSTMENT TO SPINAL CORD INJURY

It was only in the 1990's after Craig et al. (1990) highlighted the concerns regarding the lack of empirical research comparing the effects of combined psychological intervention and traditional rehabilitation, to traditional rehabilitation alone, that longitudinal, controlled studies began being published. While authors such as Treischmann (1988) reviewed a number of reports that group therapy enhanced psychological adjustment to SCI, authors such as Craig et al. (1997) argued that no data was available to support this. This chapter will review the few empirical studies that exist on the subject, and recommendations for future research will follow in the next chapter.

4.1 Craig, Hancock, Dickson, and Chang (1997)

Craig et al. (1997) were the first to begin empirical research assessing the effectiveness of a group-based CBT intervention in improving psychological adjustment after an SCI. The study compared over time levels of anxiety, depressed mood and self-esteem, of SCI persons who received CBT during their

traditional hospital rehabilitation programme, with a control group who only received the traditional rehabilitation. Craig et al. (1997) hypothesized that firstly, the treatment group would be less depressed and anxious compared to the control group, and secondly, the treatment group would have higher levels of self-esteem than the control group.

The intervention group included 28 SCI persons in hospital rehabilitation who were recently mobilised in their wheelchairs. The participants had no head injuries and/or previous psychiatric history. The control group included 41 SCI persons who were part of the traditional rehabilitation programme during their hospitalisation. Participants were assessed for depressed mood using the Beck Depression Inventory (BDI; Beck & Steer, 1987); anxiety using the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983); and self-esteem was measured using the Rosenberg Self-Esteem Scale (Rosenberg, quoted in Craig et al., 1997). Participants were assessed on three separate occasions: before, immediately after, and 12 months after treatment.

The results failed to show any significant differences on overall anxiety, depressed mood and self-esteem when the treatment group was compared with the control group. However, Craig et al. (1997) found that the treatment group showed a trend toward an improvement in depressed mood over time. While a similar picture was found in assessing anxiety levels, the authors found that CBT did not significantly influence levels of self-esteem.

It is important to note that most of the participants, in the treatment group and the control group, did not show very high levels of mood disturbance at the start of treatment. Craig et al. (1997) decided to compare a subgroup of the treatment group and the control group who initially reported high levels of depressed mood. The subgroups consisted of 10 individuals from the treatment group and 12 individuals from the control group, who initially scored greater than 14 on the BDI. In comparison to

the subgroup of the controls, they found that the subgroup of the treatment group showed significant decreases in levels of depressed mood over time, with BDI scores shifting from severe to mild. This was maintained at 12-month follow-up.

Similarly, subgroups were formed with participants who initially presented with high levels of anxiety. The subgroups included 8 individuals from the treatment group and 15 individuals from the control group, who scored 42 or greater on the STAI. Such a score represents one standard deviation above control norms (Spielberger et al., 1983). In comparison to the subgroup of the controls, Craig et al. (1997) did not find a significant improvement in anxiety in the subgroup of the treatment group. While both subgroups showed improvements over time for anxiety, the authors highlighted that the levels of improvement for the subgroup that received CBT, although not significant, was particularly high and this was maintained at 12-month follow-up.

The results confirmed that a group-based CBT intervention during hospital rehabilitation is effective in improving levels of depressed mood after an SCI for those individuals who initially present with high levels of depression. However, these results should only be seen as tentative as the number of participants was limited when comparing the results of two subgroups of the treatment and control groups. It is necessary to extend these research findings to a larger number of participants who initially present with high levels of depressed mood. Craig et al. (1997) did not highlight this point. No significant improvements were found on levels of anxiety, even when subgroups of the treatment and control groups were formed for participants who initially presented as anxious. However, the authors felt quite strongly about the general improvements in the subgroup of the treatment group and perhaps further research using a larger number of participants would place more clarity on whether CBT does improve levels of anxiety in individuals who initially present as anxious.

The intervention did not seem to have any impact on self-esteem and Craig et al. (1997) viewed this finding as confirmation that an SCI does not necessarily alter an individual's self-concept. The authors acknowledge that follow-up for more than 12-months is needed to determine the long-term effectiveness and maintenance of the research findings.

4.2 Craig, Hancock, Dickson, and Chang (1998a)

Craig et al. (1998a) extended their research findings (Craig et al., 1997) to determine the effects of the group CBT programme on individuals with an SCI two years after treatment. Once again, the results indicated that the treatment group had lower depressed mood and anxiety scores at two-year follow-up, however, these improvements were not significant when comparing the results to those of the control group. Craig et al. (1998a) wanted to determine the effects of the intervention on the participants who exhibited high levels of anxiety and depression before treatment and the same procedure was used to form subgroups from the treatment and control groups (Craig et al., 1997).

In terms of depression, the subgroup of the treatment group improved significantly compared to the subgroup of controls, indicating that the CBT intervention was effective in reducing levels of depression for those individuals who initially presented with high levels of depressed mood. Once again, the number of participants in the subgroups was limited, making these results more tentative. In terms of anxiety, Craig et al. (1998a) once again found no significant improvements in the subgroup of the treatment in comparison to the subgroup of controls. This may also be influenced by the fact that there were a limited number of participants in the subgroups.

This research provided more confirmation for Craig et al.'s (1997) view that not all people with an SCI require psychological intervention, but it does seem necessary for those who exhibit abnormally high levels of adjustment difficulties in terms of depression.

4.3 Craig, Hancock, Chang, and Dickson (1998b)

After focusing on treatment outcomes in terms of alleviating anxiety and depression using CBT, Craig et al. (1998b) investigated the effects of CBT on the participant's perceptions of control. The premise was that because of the severity and long-term physical effects of SCI, those injured were more likely to develop a sense of helplessness and external locus of control. While some controversy surrounds the topic, Abramson, Seligman, and Teasdale (quoted in Craig et al., 1998b) found that those individuals who seem to have a more external locus of control, are more likely to be depressed.

Craig et al. (1998b) included 28 individuals with an SCI in their treatment group. The participants were recently mobilised in their wheelchairs and did not suffer from a head injury or have any pre-existing psychiatric disturbance. The treatment group received group-based CBT in addition to the traditional rehabilitation programme offered at the hospital. The control group was selected according to the same inclusion criteria and included 31 individuals with an SCI who only received traditional rehabilitation. Subjects were assessed before the commencement of therapy, immediately post therapy, and at one- and two-year follow-ups. Perception of control was measured by the Locus of Control of Behaviour Scale (LCB; Craig, Franklin, & Andrews, 1984), and depressive mood was assessed by the BDI (Beck & Steer, 1987).

In comparison to the control group, the results did not show a significant treatment effect on perceptions of control. Craig et al. (1998b) understand this to be related to the fact that the majority of

subjects did not have markedly high levels of depression or external locus of control prior to the intervention. However, Craig et al. (1998b) did find that both groups had a tendency to develop a more internal locus of control over time. They decided to assess the effectiveness of the intervention on participants who initially displayed external perceptions of control. Similar to their earlier research (Craig et al., 1997, 1998a), Craig et al. (1998b) formed a subgroup of the treatment group (9 participants) and a subgroup of the control group (16 participants), who scored 33 or higher on the LCB scale. Such a score has been used to differentiate between individuals using a more internal or external locus of control and represents one standard deviation above control norms (Hancock et al., 1993b). The results indicated significant overall differences on perceptions of control between the subgroup of the treatment group and the subgroup of controls, and the improvement was maintained after two-year follow-up.

Craig et al. (1998b) also found that their results showed a significant, but mild, association between locus of control and long-term (two years) depressive mood for the treatment and control groups merged. Craig et al. (1998b) made two important remarks after their research over the last decade. Firstly, not all persons with SCI need to receive psychological intervention. The traumatic injury itself does warrant expected adjustment difficulties on a physical and psychological level, but it does not have to lead to long-term psychological distress. There is research that shows that some SCI persons seem to have higher self-esteem and a more positive outlook on life than able-bodied persons (Green, Pratt, & Grigsby, quoted in Craig et al., 1997). Those individuals, who present with abnormally high levels of anxiety or depression, need to be identified during hospital rehabilitation and possibly join a CBT intervention programme to assist their psychological adjustment. Secondly, Craig et al. (1998b) made the important statement that those people with SCI are a “heterogenous” group, and clinicians need to recognize that they make use of different coping styles and ways of dealing with their traumatic injury.

4.4 Craig, Hancock, and Dickson (1999)

A two-year follow-up was conducted by Craig, Hancock and Dickson (1999) on those SCI persons who participated in the earlier longitudinal controlled trial (Craig et al., 1997) where they received group CBT during their hospital intervention. The study assessed the 28 SCI persons on various aspects of adjustment, including drug usage, hospital readmissions, relationships, perceived adjustment and social discrimination two years after treatment. The control group consisted of 31 SCI persons who were part of a traditional rehabilitation programme. When comparing the responses of the treatment group and the control group, Craig et al. (1999) found that the treatment group reported fewer hospital readmissions, less drug usage and higher levels of adjustment. There were no significant differences in the stability of relationships and perceived social discrimination between the two groups. Craig et al. (1999) found the results to be more positive in terms of SCI general adjustment post-injury and felt that it further supports the effective use of CBT in rehabilitation.

4.5 King and Kennedy (1999)

In the same year as the above study, King and Kennedy (1999) began their empirical research in a pilot study evaluating the effectiveness of the Coping Effectiveness Training (CET) programme discussed in the previous chapter. King and Kennedy (1999) hypothesized that SCI patients receiving the group-based psychological intervention would show a greater improvement in levels of depression and anxiety and a greater increase in the use of adaptive coping strategies compared to patients who did not receive the intervention.

Similar to the empirical research by Craig et al. (1997, 1998a, 1998b), participants had to be recently injured, not considered to be suffering from a head injury or have a previous psychiatric disturbance.

The intervention group consisted of 19 patients who were recently mobilised in their wheelchairs. In addition to the CET group, they received standard rehabilitation treatment including physical rehabilitation and an information group focusing on self-care, mobility and preparation for hospital discharge. The control group was selected from a database previously collected for the longitudinal study by Kennedy (quoted in King & Kennedy, 1999) looking at psychological adjustment and coping. Although the 19 control group patients had been selected using the same inclusion criteria and had undergone the same rehabilitation programme at the spinal injury centre, the control group were not actively in rehabilitation, and historical controls can lead to methodological problems. However, King and Kennedy (1999) ensured that the control group were matched for demographic and injury variables and pre-intervention measures of depression, anxiety and coping.

As discussed in the previous chapter, the CET intervention for SCI is based on Lazarus and Folkman's (1984) cognitive theory of stress and coping. The effectiveness of the CET intervention was assessed by using five assessment tools on three separate occasions; namely pre- and post-intervention (one week before and one week after the intervention), and at six-week follow-up (King & Kennedy, 1999). Outcome measures for depression were obtained using the BDI (Beck & Steer, 1987) and anxiety was measured using the STAI (Spielberger et al., 1983). The COPE (Carver, Scheir, & Weintraub quoted in King & Kennedy, 1999) was selected to assess coping strategies employed by participants.

The research by King and Kennedy (1999) showed significantly greater reductions in symptoms of depression and anxiety for the intervention group in comparison to the matched control group, and this was maintained after six weeks follow-up, suggesting that the CET programme was effective. However, the authors were surprised to find that the CET intervention did not bring about any significant increase in adaptive coping strategies or a significant decrease in maladaptive coping strategies compared to the control group.

King and Kennedy (1999) felt strongly about the relationship between coping strategies and rates of anxiety and depression and hypothesised that the use of different assessment measures for coping may have resulted in different outcomes relating to coping. They were of the opinion that it is perhaps difficult to change the coping strategies that people report using, even when levels of anxiety and depression are improved. They also mention that the protected environment of the hospital setting may have restricted the participants' immediate changes in coping strategies. Nevertheless, what is important about this study is that the intervention did not seem to significantly change coping strategies and yet the symptoms of anxiety and depression reduced significantly. Limited information is provided about the exact nature of the coping strategies the authors were targeting for change and the availability of the treatment manual may assist in clarifying this issue.

Limitations of the research included the small sample size, use of a non-randomized sample, and the short follow-up. As stated in the review by Craig et al. (1990), levels of depression and anxiety can be relatively stable over the first two years following SCI. The fact that the sample was non-randomized is a limitation not only specific to King and Kennedy (1999) as this was also a shortcoming for the Craig et al. (1997) study.

What was particularly useful for qualitative purposes was a semi-structured interview conducted with each member of the intervention group during the post-intervention assessment, requesting feedback on their impressions of the intervention (King & Kennedy, 1999). Participants reported that peer interaction in the group was important for them, particularly in terms of sharing experiences, peer role modelling and social support. It seems that these interactive aspects may have been lost in individual therapy. In terms of Craig et al.'s (1997) hypothesis that a CBT intervention only produces significant change in a population who show marked levels of anxiety and depression, King and Kennedy (1999) did not place much emphasis on this research idea. They did, however, mention that the intervention

and control group showed higher levels of depression and anxiety pre-intervention compared to the larger sample from which controls were selected.

4.6 Kennedy, Duff, Evans, and Beedie (2003)

Kennedy et al. (2003) extended the findings of the pilot study (King & Kennedy, 1999), in order to evaluate the effectiveness of the CET intervention on a larger sample of SCI patients and with a longer follow-up period. A total of 45 patients formed the intervention group, using the same inclusion criteria as the pilot study. Historical controls were used once again by selecting 40 patients from a database collected as part of a longitudinal study of psychological adjustment and coping (Kennedy et al., 2000). The intervention group was assessed on three occasions, one week pre- and post-intervention and at six-month follow-up. Measures of assessment included the BDI (Beck & Steer, 1987) for depression, the STAI (Spielberger et al., 1983) for anxiety, and the COPE (Carver et al., quoted in Kennedy et al., 2003) for coping strategies. An additional measure to the pilot study, was the Self-Perception Scale (SPS; Gorman, Kennedy, & Hamilton, quoted in Kennedy et al., 2003) adapted specifically for SCI research.

The results confirmed those of the pilot study (King & Kennedy, 1999); the intervention group showed a significant reduction in levels of anxiety and depression when compared to the control group, and this was maintained at six-month follow-up (Kennedy et al., 2003). The control group did not show any change in mood over time. It was also confirmed that changes in mood of the intervention group were not associated with patients using different coping strategies. Kennedy et al. (2003) found qualitative data from the patients to be contradictory to the results of the COPE, as they reported that the most effective aspect of the group was learning how to make more positive appraisals of their situation. The

authors speculate that the reason for this discrepancy is perhaps patients intend to cope differently, but their ability to apply these principles practically is limited.

As in the pilot study by King and Kennedy (1999), Kennedy et al. (2003) felt that the COPE was not sensitive enough to detect changes in appraisal and coping. The research articles do not report on the reliability and validity of the assessment tool, other than it was used in previous SCI research by Kennedy (quoted in Kennedy et al., 2003). This may indicate that either the COPE is not a reliable and valid assessment tool or there is very little association between coping styles and levels of depression.

Kennedy et al. (2003) noted that the Self-Perception Scale (SPS) results for the intervention group indicated a more likely association between changes in perception and changes in appraisal. Patients reportedly became closer to the “ideal” self-perception during the intervention and at follow-up. The assessment tool is not a well-known scale and was unavailable for this research assignment, but Kennedy et al. (2003) describe it as:

... consisting of ten bipolar adjectives on a five-point Likert-type scale. For example, the five points on the popular scale are very unpopular, slightly unpopular, neither unpopular nor popular, slightly popular, and very popular. Higher scores reflect a greater association with the adjective. The SPS is completed three times on the dimensions of a) “As I am”, b) “As I would be without the injury”, and c) “As I would be ideally. (p. 45)

As a result of using historical controls, no control data was available for comparison of the Self-Perception Scale (SPS) results, as it had not been developed at the time of assessing the control group. Therefore, no deductions can be made as to whether the changes in appraisal were related to the intervention. It can be hypothesized that the changes in self-perception may be linked to the improvement in mood (Kennedy et al., 2003). The intervention group’s depression and anxiety scores

were strongly correlated with discrepancies between scores for 'as I am now' and 'as I would be without my injury.' The authors further hypothesize that the significant decrease in negative self-perception could illustrate fewer negative appraisals of the injury and an increased sense of being able to manage the consequences.

4. SUMMARY AND RECOMMENDATIONS

While most rehabilitation centres specialising in SCI have developed intensive treatment programmes to enhance the physical adjustment to the traumatic injury, this research assignment focused on the psychological and emotional aspects of rehabilitation and living with SCI. It was noted how the first few months following an SCI, the individual injured goes through a multitude of emotional responses that early researchers converted into stage theories. Treischmann (1988) highlighted how researchers began challenging the stage theories after finding that there was such variability in the response to SCI. The population is not homogeneous and everyone responds in different ways to a traumatic injury and its physical, vocational and social consequences.

In terms of psychological adjustment to SCI, the literature indicates increased risks for divorce, substance abuse and self-neglect in this population (DeVivo et al., quoted in Craig et al., 1997). Suicide rates are also reportedly higher for individuals with SCI (Stewart, 1988). However, the literature emphasises that psychological disturbance is not an inevitable long-term consequence of SCI (Craig et al., 1990; Kennedy & Rogers, 2000). Despite this, researchers do agree that a proportion of the population with SCI has marked difficulty adapting psychologically to their new lifestyle and the challenges it poses.

Most researchers use anxiety and depression as indicators for psychological adjustment to SCI. Research has shown that anxiety and depression found in the SCI population during their initial rehabilitation, is linked to the lack of predictability and sense of control they experience (Kennedy et al., 2003). Clinical impressions also indicate that they feel inadequate to cope with the future implications and challenges of the injury. Empirical research such as Hancock et al (1993a) has consistent findings that depression is present in 20%-45% of individuals with SCI. In terms of anxiety, research has shown that the SCI population is also at an increased risk (Kennedy & Rogers, 2000), with prevalence between 20% and 25% (Hancock et al., 1993a). The psycho-social impact of pain was reported to directly or indirectly lead those with an SCI to report depression, low self-esteem, suicidal ideation and relationship problems (Colley & Faul, 1997).

Treichsmann (1988) regards locus of control as playing a powerful role in the process of adjustment to SCI. Those who perceive their behaviour as influencing outcome tend to be more active, less depressed, more productive and satisfied with life after discharge from the hospital. While there may be variability in responses, it does seem that those who tend to use an internal locus of control seem to cope better with the challenges of having an SCI (Craig et al., 1990; Lilliston, 1985).

Hancock et al. (1993b) looked at the effects of SCI on perceptions of control, self-esteem and coping styles over the first year of SCI. Results after one year showed that the SCI group perceived their life to be controlled externally, to have lower self-esteem and have more helpless and fatalistic coping styles compared to the able-bodied matched controls. These results remained relatively unchanged after two-year follow-up (Craig et al., 1994). This highlighted that time does not necessarily enhance adjustment to SCI. It seems that the small but significant proportion of this population experiencing psychological difficulties do so over several years after their injury.

In the mid-1990's, researchers involved in SCI and rehabilitation started developing CBT interventions to assist individuals with their psychological adjustment to the traumatic injury. Two main groups of authors were identified. The first group included Ashley Craig and Karen Hancock as the principle authors (Craig et al., 1997; 1998a, 1998b, 1999). The second group has Paul Kennedy as principle author (Kennedy et al., 2003; King & Kennedy, 1999). Both groups of authors implemented a group-based intervention. The latter group used the theoretical underpinnings of Lazarus and Folkman's (1984) cognitive theory of stress and coping for their intervention, while the former group did not specify the theory they based their intervention on, other than it was a CBT approach. Unfortunately, the treatment manuals for both interventions were unavailable for this research assignment, limiting the scope for more critical evaluation.

The empirical research by Craig et al. (1997, 1998a) did not show significant improvements in levels of depression and anxiety when comparing the treatment group with a matched control group. As most of the participants did not show very high levels of mood disturbance at the start of treatment, Craig et al. (1997) decided to compare a subgroup of the treatment group and the control group who initially reported high levels of depressed mood. In comparison to the subgroup of the controls, they found that the subgroup of the treatment group showed significant decreases in levels of depressed mood over time, and this was maintained at one-year follow-up (1997) and two-year follow-up (1998a). Similarly, subgroups were formed with participants who initially presented with high levels of anxiety, but they failed to show significant improvement in anxiety when the subgroup of the treatment group was compared to the subgroup of controls. However, the authors highlighted that the levels of improvement in levels of anxiety for the subgroup that received CBT, although not significant, was particularly high and this was maintained at one-year follow-up (1997) and two-year follow-up (1998a).

The results confirmed that a group-based CBT intervention during hospital rehabilitation is effective in improving levels of depressed mood after an SCI for those individuals who initially present with high levels of depression. However, these results should only be seen as tentative as the number of participants was limited when comparing the results of two subgroups of the treatment and control groups. It is necessary to extend these research findings to a larger number of participants who initially present with high levels of depressed mood. The research failed to find any significant improvements in levels of anxiety and self-esteem.

In terms of perceptions of control, Craig et al. (1998b) hypothesised that because of the severity and long-term physical effects of SCI, those injured were more likely to develop a sense of helplessness and external locus of control. In comparison to the control group, the empirical study did not show a significant treatment effect on perceptions of control. Craig et al. (1998b) understand this to be related to the fact that the majority of subjects did not have markedly high levels of depression or external locus of control prior to the intervention. They decided to assess the effectiveness of the intervention on participants who initially displayed external perceptions of control. Similar to their earlier research (Craig et al., 1997, 1998a), Craig et al. (1998b) formed subgroups of the treatment and control groups who displayed a more external locus of control. The results indicated significant overall differences on perceptions of control between the subgroup of the treatment group and the subgroup of controls, and the improvement was maintained after two-year follow-up.

Kennedy et al. (2003) criticise the work of Craig et al. (1997) on its lack of theoretical underpinnings and feel that this is probably why their research failed to find overall significant improvements in levels of anxiety and depression after their group-based CBT intervention. The pilot study by King and Kennedy (1999) showed significantly greater reductions in symptoms of depression and anxiety for the intervention group in comparison to the matched control group, and this was maintained after six weeks

follow-up. These findings were extended using a larger number of participants and at six-month follow-up (Kennedy et al., 2003), suggesting that the CET programme was effective in alleviating levels of depression and anxiety. Perhaps Kennedy et al. (2003) are correct in saying that their intervention indicates enhancement of psychological adjustment to SCI partly because of it being theoretically grounded in Lazarus and Folkman's (1984) cognitive theory of stress and coping.

Interestingly, King and Kennedy (1999) did not find that the CET intervention brought about any significant increase in adaptive coping strategies or a significant decrease in maladaptive coping strategies compared to the control group, and these results were duplicated by Kennedy et al. (2003). They were of the opinion that it is perhaps difficult to change the coping strategies that people report using, even when levels of anxiety and depression are improved. They also mention that the protected environment of the hospital setting may have restricted the participants' immediate changes in coping strategies.

Kennedy et al. (2003) question the ability of the assessment tool (the COPE) in being sensitive to measuring changes in coping strategies, and the validity and reliability of the tool is in question. Kennedy et al. (2003) found qualitative data from the patients to be contradictory to the results of the COPE, as they reported that the most effective aspect of the group was learning how to make more positive appraisals of their situation. However, what is important about this study is that the intervention did not seem to significantly change coping strategies and yet the symptoms of anxiety and depression reduced significantly. More research making use of different assessment tools in measuring coping strategies may be useful in finding more clarity on this issue.

Craig et al. (1998b) makes two important remarks after their research over the last decade. Firstly, not all persons with SCI need to have psychological intervention. The traumatic injury itself does warrant

expected adjustment difficulties on a physical and psychological level, but it does not have to lead to long-term psychological distress. There is research that shows that some SCI persons seem to have higher self-esteem and a more positive outlook on life as able-bodied persons (Green et al., quoted in Craig et al., 1997). Those individuals, who present with abnormally high levels of anxiety or depression, need to be identified during hospital rehabilitation and possibly join a CBT intervention programme to assist their psychological adjustment. Secondly, Craig et al. (1998) made the important statement that those people with SCI are a “heterogenous” group, and clinicians need to recognize that they make use of different coping styles and ways of dealing with their traumatic injury.

It is recommended that more controlled longitudinal studies are done with an extended follow-up period of at least five years. It would be interesting to duplicate the research on a South African population to see if results are similar. Working with such a specific population group can sometimes make it difficult to use a large group of participants and matched controls, but this would be necessary to further validate the results. Future research necessitates a more critical evaluation of the theoretical grounding for the CBT approach utilised by researchers with an SCI population and this can only be achieved by obtaining the treatment manuals. It would also be interesting to compare the treatment outcomes with other therapeutic modalities, but this could be difficult with therapies that are difficult to standardise, such as psychodynamic therapy.

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