Coping effectiveness training for people with spinal cord injury

Thesis

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Coping Effectiveness Training for People with Spinal Cord Injury

by

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Abstract

This project describes the development, implementation and evaluation of a new psychological intervention for improving psychological adjustment and enhancing adaptive coping following spinal cord injury. The Coping Effectiveness Training programme developed is a group-based seven session long intervention. It is grounded on the cognitive theory of stress and coping developed by Lazarus and Folkman (1984) and represents an original adaptation of the theory to the needs of this client group. The intervention was successfully implemented as part of the rehabilitation programme of a national spinal injury centre. Proactive strategies were necessary to establish the essential good collaboration with other rehabilitation staff and ensure good patient participation in the groups.

A non-randomised controlled trial was used to evaluate the intervention, using nineteen participants from three Coping Effectiveness Training groups and nineteen carefully matched controls selected from the database of a previous study (Kennedy, 1995). Participants who attended the groups showed significantly greater reductions in levels of depression and anxiety compared to matched controls immediately after the intervention and at six weeks follow-up, indicating that the intervention had facilitated a significant improvement in participants' psychological adjustment to spinal cord injury. A trend towards a significant improvement in participants' self-concept was also found over the observation period. However, there was no evidence of significant changes in the coping strategies used by participants who attended the groups compared to matched controls, with the exception of the 'Acceptance' coping strategy. Most participants said the groups had been helpful in making the consequences of the injury more manageable, with the interaction with other group participants being highlighted as the most beneficial aspect of the intervention. It is proposed that the improvements made in psychological adjustment can be understood in terms of changes in participants' beliefs about the implications of spinal cord injury and about the coping skills needed to be able to continue living meaningful and satisfying lives.

Acknowledgements

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Part I: Development of a Coping Effectiveness Training group-based intervention for people with spinal cord injury

Part II: Implementation and evaluation of the Coping Effectiveness Training intervention for people with spinal cord injury

Section 1

Overview

1 Overview

Spinal cord injury (SCI) represents a serious challenge to a person's well-being on a number of different levels. It imposes physical and practical restrictions which may demand important modifications in a person's activities, it can result in significant changes in a person's social relationships, not least because of the social stigma associated with physical disability, and is likely to require a radical revision of the person's self-image (Ray & West, 1984). It is therefore possibly not surprising that individuals have an increased risk of developing psychological problems following SCI (Craig, Hancock, Dickson, Martin & Chang, 1990)

Although the use of psychological interventions aimed at helping adjustment to SCI seems to be fairly common in specialised rehabilitation centres (Craig et al., 1990), there are few detailed reports in the literature of the content of such interventions or of the theoretical background on which they are based. There is also a striking paucity of empirical evaluations of the efficacy of any such interventions, and the need for such work has been highlighted in a number of recent reviews (e.g. Trieschmann, 1988).

This project therefore had the following three aims:

Aim 1: To develop a group-based intervention for improving psychological adjustment to spinal cord injury and enhancing adaptive coping in recently injured patients.

Aim 2: To determine whether it is possible to implement this intervention for people with spinal cord injury as a standard component of a hospital rehabilitation programme.

Aim 3: To evaluate the efficacy of this intervention for improving psychological adjustment, increasing adaptive coping and reducing maladaptive coping in people with spinal cord injury.

Part I of this project describes the development of the group-based intervention. It represents an original adaptation of Lazarus and Folkman's (1984) cognitive theory of stress and coping to this client group. Section 2 initially offers a brief overview of the physical effects of SCI and the typical process of rehabilitation. The psychological effects of SCI, and the factors affecting long-term adjustment to the injury are then reviewed, and recent research exploring the range of coping strategies employed by SCI patients, and their relation to psychological impact, is also described. Section 3 begins by describing previous psychological interventions for SCI patients, and the surprising absence in the literature of theoretically grounded and empirically evaluated interventions is highlighted. Lazarus and Folkman's (1984) cognitive theory of stress and coping is outlined, and its recent translation into a clinical intervention (Coping Effectiveness Training (CET)) for chronic stress, such as in AIDS sufferers (Folkman, Chesney, McKusick, Ironson, Johnson, & Coates, 1991), is described. The process of adapting CET for the SCI client group is then outlined, and the contents of the therapy manual especially prepared for this project as the intervention protocol are presented.

Part II describes the implementation of the CET intervention as a component of the rehabilitation programme offered at a hospital based national spinal injuries centre (NSIC), and the empirical evaluation of its effectiveness for improving psychological adjustment and enhancing adaptive coping in SCI patients. Section 4 introduces the key issues to be considered in implementing such an intervention with this client group, and defines the hypotheses which will be tested in the study. Section 5 describes the process of implementing the intervention and the strategies used to overcome expected difficulties, and the details of the method employed in the empirical evaluation. Section 6 describes the results of both implementation and evaluation. These are discussed in section 7, and some of the clinical and research implications outlined. Finally, Section 8 draws overall conclusions.

Part I: Development of a Coping Effectiveness Training group-based intervention for people with spinal cord injury

Section 2

Spinal Cord Injury

2 Spinal Cord Injury

2.1 The Injury

2.1.1 Aetiology, incidence and prevalence

A spinal cord injury (SCI) is one of the most devastating physical injuries a person may sustain, with significant physical and emotional implications, and requiring extensive adaptations in many areas of the person's life. Medical advances over the past 50 years have greatly increased the survival rate of people who sustain SCI, from a 90% death rate within the first year post-injury before WWII (Guttmann, 1973) to a current life expectancy of over 30 years past the injury (DeVivo, Black, Richards, & Stover, 1991). This has allowed more attention to be focused on the complex physical, psychological and social issues surrounding the process of long-term adjustment to life with SCI.

Traumatic SCI occurs when the spinal cord is either compressed, stretched or lacerated, and is often associated with a fracture or dislocation of the vertebral column. Non-traumatic injuries can be caused by tumours, infections and multiple sclerosis. As the spinal cord is the main conveyor of sensory, motor and autonomic neural information, SCI results in partial or complete loss of these functions below the level of the injury.

Road traffic accidents are the single major cause of traumatic SCI in industrialised countries, accounting for approximately 50% of cases. Other principal causes include domestic and industrial accidents (25%) and sports activities (15%). Gunshot or stab wounds account for 5% of injuries in the UK, but up to 15% of cases in the USA (Creek, Moore, Oliver, Silver & Zarb, 1989; Stover, DeLisa & Whiteneck, 1995).

There are approximately 40,000 people with SCI in the UK, with between 10 to 15 yearly new cases per million population (Frankel, 1983). In the USA there is an estimated 200,000 people with SCI and an annual incidence of approximately 30 (Stover et al, 1995). Most injuries are sustained by young males, with the male to female ratio being 4:1, and over 65% of injuries occurring before the age of 30 (Stover et al., 1995).

2.1.2 Physical consequences of spinal cord injury

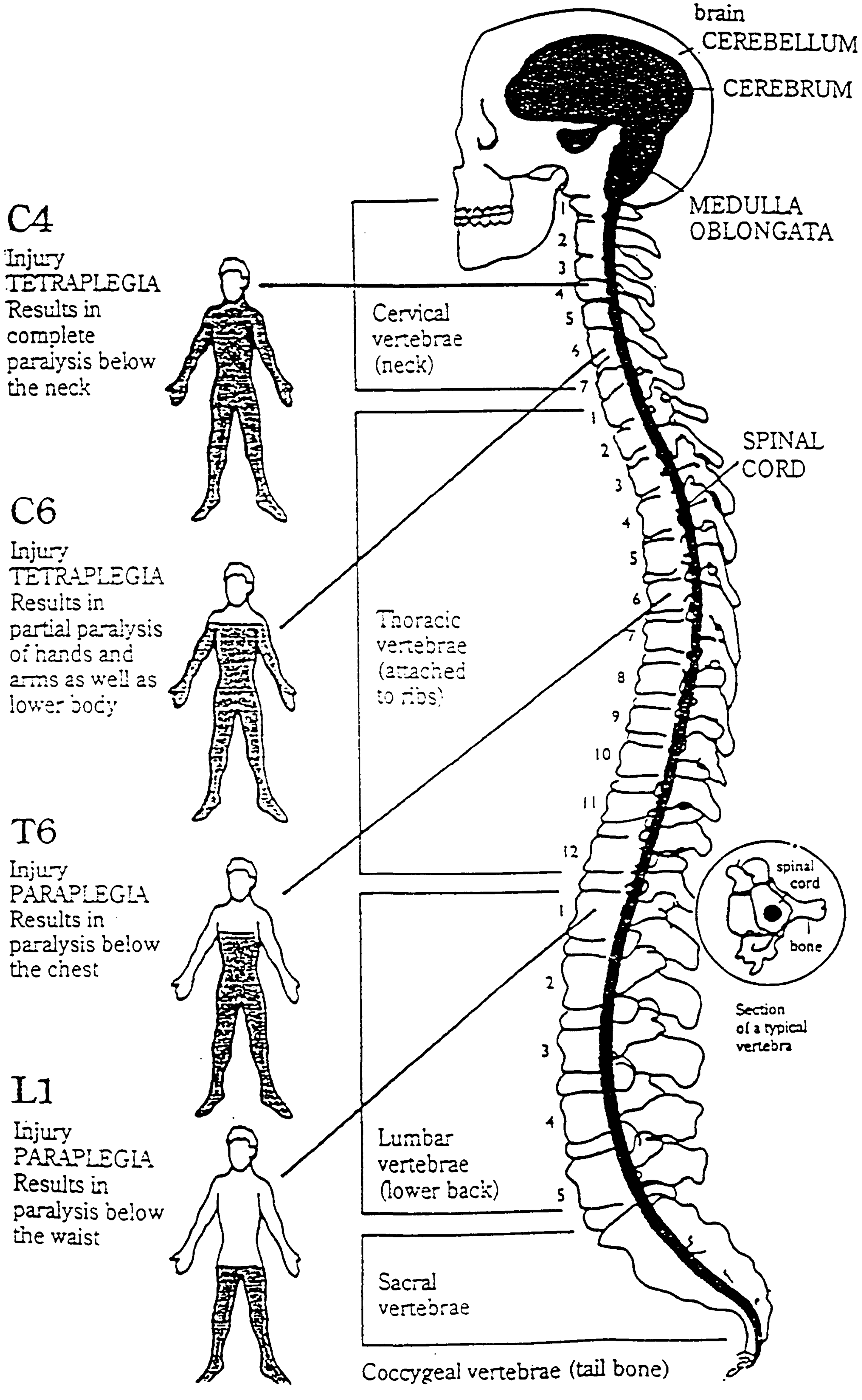
The degree of neurological impact depends on the completeness of the injury, with complete injuries resulting in all sensory, motor, visceral and sexual functions being lost below the level of the injury. Spinal cord neurones do not regenerate, and neurological damage is therefore permanent even in incomplete injuries.

Figure 1.1 gives an indication of the extent of paralysis associated with different levels of injury. Approximately 50% of injuries are neck injuries and result in tetraplegia (Stover et al., 1995), with loss of function in all four limbs as well as shoulders, diaphragm and thorax. Injuries above the 7th cervical segment usually preclude the possibility of independent living. Injuries in the thoracic, lumbar and sacral regions result in paraplegia, with loss of function in the lower trunk and leg muscles. Sensory losses normally occur in similar areas, and may include loss of touch, pressure, temperature and position awareness. Loss of control over bladder and bowel functions, as well as genital sexual sensation and responsivity, occurs in complete injuries above the sacral region, and perhaps contribute to some of the greatest difficulties experienced. Patients may experience numerous related medical complications due to pressure sores, involuntary and uncontrolled spasms, urinary tract problems, respiratory infections, blood pressure problems and chronic pain (Kennedy, 1991).

2.1.3 Rehabilitation

The injured person is usually transferred to a specialist SCI centre as soon as possible after the injury or onset of the disorder, and immediately commences an initial phase of treatment which is aimed at stabilising the spine and preventing secondary medical complications and may include up to three months postural reduction (bed rest). Once this has been achieved an active process of rehabilitation can begin, and on average will require a total length of hospitalisation of between four to six months for paraplegics and six to twelve months for tetraplegics. The goal of rehabilitation is to help the person acquire the skills necessary to achieve the maximum functional independence possible and be able to meet all

Figure 1.1: Level of injury and extent of paralysis



new needs, with the overall aim of facilitating the development of a satisfying and productive life-style after discharge (Kennedy, 1997).

This will involve learning skin, bladder and bowel management, and wheelchair and functional independence skills. The wider psycho-social implications of the SCI must also be considered, and a multidisciplinary team is usually involved in helping the injured person and their family address new social and vocational needs. There is also an increasing recognition of the importance of supporting the psychological adjustment to SCI during rehabilitation. The role of a clinical psychologist in the team in seen as central in helping reduce the psychological disruption caused by the injury (Kennedy, in press; Crewe & Krause, 1987), though the intensely medical environment within which rehabilitation usually takes place can pose some challenges to this (Craig & Hancock, 1994). Consumer surveys do suggest that people with SCI would value an increase in the psychological services available to them (Pelletier, Rogers & Thurer, 1985).

2.2 Psychological consequences of spinal cord injury

2.2.1 Early psychological impact

Not surprisingly, the dramatic physical consequences of SCI, together with the far-reaching personal and social implications, can result in considerable psychological impact. Typical emotional reactions to the injury involve initial shock and denial, as well as increased levels of emotional distress manifested in anxiety, low mood and hopelessness (Kennedy, 1991). Much of the literature conceives this psychological impact in terms of "normal reactions to an abnormal situation" (Trieschmann, 1988), but it is now generally acknowledged that negative emotional reactions are neither universal or necessary for successful rehabilitation (Kennedy, 1997). Nonetheless, there is sufficient empirical evidence to suggest that an increased risk of developing psychological problems does exist in this population (Craig et al., 1990; Kennedy, 1995).

Depression has been the most widely investigated measure of psychological impact, with the early literature primarily based on clinical impressions suggesting that, given the extent of the losses experienced, depression should at some point be experienced by all SCI patients (Siller, 1969). More recent controlled empirical research has challenged this view and shown that, although lowered mood may be readily observed in many SCI patients, in most cases this is transient and can be understood as a normal grief reaction to the SCI rather than an indication of a depressive disorder (Frank, Umlauf, Wonderlich, Askanazi, Buckelew & Elliott, 1987; Judd, Stone, Webber, Brown & Burrows, 1989).

However, a small but significant minority of patients do become clinically depressed. Carefully controlled studies using clinical diagnostic interviews and standardised measures have indicated that between 25% and 38% of patients are clinically depressed during their initial rehabilitation stay in hospital (Fullerton, Harvey, Klein & Howell, 1981; Frank, Kashani, Wonderlich, Lising & Visot, 1985; Judd et al., 1989). This was found to be approximately five times the prevalence reported in the general population using the same criteria (Weissman, Myers & Harding, 1978), and significantly higher than found in matched able-bodied controls (Hancock, Craig, Dickson, Chang & Martin, 1993). Clinical impressions suggest that the presence of negative catastrophic thinking patterns related to the perceived long term consequences of the losses incurred are often associated with depressed mood in people with SCI (Kennedy 1991; Craig, Hancock & Dickson, 1994).

Feelings of hopelessness can also be marked in patients with SCI and may be associated with beliefs that life with SCI can no longer be meaningful or satisfying (Judd & Brown, 1992). For instance, Kennedy, Lowe, Grey & Short (1995) found raised levels of hopelessness comparable to that in other clinical populations, and Pinkerton & Griffin (1983) found that 50% of their sample of SCI patients described having suicidal thoughts.

High levels of anxiety have also been reported in SCI patients (Bracken, Shepherd & Webb, 1981; Cook, 1979). In a recent well controlled study, Hancock et al. (1993) found that 25% of their sample of recently injured patients had anxiety scores above the clinical cut-off on a well validated measure, and this was significantly higher than the 5% found in a matched sample of able-bodied subjects. Kennedy (1995) similarly found 24% of his sample of SCI patients experienced anxiety above the clinical cut off one year after the injury.

Clinical impressions suggest that anxiety can be associated with the lack of predictability and control often experienced by SCI patients, and a perceived inadequacy at being able to cope with the future consequences of the injury (Kennedy, 1991).

The SCI can be an important assault on the patient's identity, with aspects of the pre-injury self-concept becoming less personally relevant after the injury (Trieschmann, 1988). The process of learning to cope with disability will involve changes in self-concept and some authors have examined the way in which this can initially result in lowered self-esteem (Gagnon, 1990; Van Den Bout, Van Son-Schoones, Schipper & Groffen 1988). For instance, Craig et al. (1994) found significantly lower levels of self-esteem in a sample of SCI patients one year after the injury compared to matched able-bodied controls.

2.2.2 Longitudinal development of the psychological impact of spinal cord injury

Early literature based on clinical impressions suggested that the passage of time was a critical factor in relieving psychological distress and securing a healthy adjustment to disability (e.g. Kerr & Thomson, 1972). More recent empirical research has questioned the validity of this assumption for all SCI patients. Craig et al. (1994) followed a sample of SCI patients through the first 2 years after their injury and found no significant improvement in levels of depression or anxiety over the period, with SCI patients remaining significantly more depressed and anxious than matched able-bodied controls two years after the injury. Hancock, Craig, Tennant & Chang (1993b) similarly found that measures of self-esteem had not improved significantly over the first two years post-injury, and remained significantly worse than for a matched able-bodied control group. Kennedy et al. (1995) compared two matched groups of SCI patients, six weeks after injury and four to seven years after injury. No significant differences between the groups were found in measures of depression, anxiety or hopelessness, with a small but significant proportion of patients showing clinical levels of psychological distress in both groups.

Kennedy (1995) has recently completed a carefully controlled longitudinal study of psychological impact and coping in people with SCI. Measures of depression and anxiety, as well as of the range of coping strategies employed, were collected from a cohort of 87 patients with traumatic SCI every six weeks whilst in hospital and for up to two years post discharge. No significant differences were found across time over the entire observational period in either depression or anxiety scores. The proportion of subjects with depression and anxiety scores above clinical cut-offs also remained stable, with the prevalence of clinical depression lying between 26% and 34%, and clinical anxiety between 17% and 28%.

This literature therefore suggests that the level of psychological distress experienced does not always decrease during the first two years after the injury, and it is a simplification to expect that time will necessarily lead to a reduced prevalence of psychological problems. The assumption that 'time will heal' may be ignoring the complex processes involved in adjusting to SCI and the diversity of individual responses to this major life event (Trieschmann, 1988).

2.2.3 Long-term adjustment to spinal cord injury

Trieschmann (1988) has described long-term adjustment to SCI as a life-long process of learning to live with a disability, with no well defined end point or final goal. It will involve widespread changes in the person's physical and emotional relationship with themselves and with their physical and social environment, and will require significant adaptations in self-care, domestic arrangements, inter-personal roles and responsibilities, wider social interactions, and in vocational and occupational areas of their life. Recent empirical research into the quality of long-term adjustment has nonetheless indicated that in general people with SCI do not experience psychological disruption as a long-term consequence of the injury, with high levels of satisfaction being found in personal, social and vocational aspects of life (Crewe & Krause, 1990; Schulz & Decker, 1985; Mayer & Eisenberg, 1982).

However, evidence from a range of psycho-social measures does indicate that a significant proportion of people with SCI do have long-term difficulties in adjusting to their disability. For instance, there are higher than expected suicide rates amongst people with SCI (DeVivo et al., 1991), and evidence of frequent indirect self-destructive behaviour, such as resulting from poor or neglected self-care (Macleod, 1988; Nehemkis & Groot, 1980). There are also reports of a long-term impact on intimate relationships, with substantially fewer marriages and more divorces than in the general population (DeVivo & Fine, 1985). Drug and alcohol abuse has also been found to be a significant problem in this population (Crewe & Krause, 1987).

2.2.4 Factors influencing long-term adjustment to spinal cord injury

A number of variables have been found to be associated with a good long-term adjustment to SCI. Several studies have shown that younger people adjust better than individuals who are older at the time of the SCI (Judd et al., 1991; Woodrich & Patterson, 1983), and males have been found to have a greater difficulty in adjusting than females (Woodrich & Patterson, 1983).

A possibly surprising but consistent finding is that the level of the injury does not appear to be predictive of psychological adjustment to SCI (Woodrich & Patterson, 1983; Judd et al., 1989; Kennedy et al., 1995; Fullerton et al., 1981), though the degree of functional independence will be important in determining many aspects of the person's life outside hospital.

Locus of control has also been shown to be associated with outcome after SCI. Individuals who have an internal locus of control and believe they have greater personal control over their lives and events in which they are involved have been found to adjust better to SCI than people with an external locus of control (Frank et al., 1987; Frank & Elliott, 1989).

Social support is an important variable strongly associated with good long-term adjustment to SCI (Schulz & Decker, 1985; Judd, Webber, Norman, & Burrow, 1991), with the quality of support being more important than the number of supports or the type of social relationship. In particular, it seems that relationships which reassure the individual of a sense of self-worth by recognising ability and competence are especially helpful in fostering adjustment to SCI (Elliott, Herrick, Patti, Witty, Godshall & Spruell, 1991).

Finally, a number of longitudinal studies report an association between psychological morbidity during hospitalisation, the quality of the rehabilitation achieved, and future adjustment to SCI. For instance, Malec & Neimeyer (1983) found that early measures of distress and depression predicted both the length of hospitalisation and quality of bladder and skin self-care skills at discharge and follow-up. Lawson (1978) and Dinardo (1971) found that levels of depression during hospitalisation were negatively correlated with a range of measures of post-discharge adjustment such as levels of employment and independent living.

2.3 Coping with spinal cord injury

Numerous articles in the early literature based on clinical impressions suggested that individuals typically experienced a sequence of 'normal' stages as they endeavoured to cope with SCI (Hohmann, 1975; Tucker, 1980). Although there was some disagreement amongst different authors, these theories generally postulated a progression through some variant of stages of shock, denial, depression and adaptation. The implication was that any individual who did not proceed through the prescribed stages was abnormal (Hammell, 1992).

More recent empirical research has highlighted the enormous variability which exists in the psychological reactions to SCI, and has clearly shown that no single stage theory can adequately account for the range of individual experiences (Trieschmann, 1980). For instance, as described above, only a minority of SCI patients become depressed and some do not experience grief or a process of mourning. Trieschmann (1988) has convincingly argued that the process of adjustment to SCI depends on the unique individual combination of a range of organic, psycho-social and environmental variables, which results in the wide diversity of reactions to SCI. In particular she suggests that a person's style of coping with stress and the range of coping strategies which they mobilise in response to the injury may be an important variable influencing the psychological consequences of SCI (Ray & West, 1984). More research has therefore been recently focused in trying to understand the relationship between coping and psychological outcome in SCI.

A number of studies have found an association between the coping strategies used and the psychological impact of SCI. For instance, Reidy, Caplan & Shawaryn (1991) found that newly injured patients employed a wide range of coping strategies, with social support, positive re-appraisal and planful problem solving being the most frequently used. A strong correlation between levels of depression and the use of escape/avoidance strategies was discovered, and positive mood and reduced psychological distress was associated with the use of positive re-appraisal, seeking social support and planful problem solving strategies. Hanson & Tate (1994) similarly found that 59% of the variance in life satisfaction in a sample of people with SCI living in the community was accounted for by perceived coping success and by not using avoidant coping strategies. Kennedy et al. (1995) found that patients six weeks post-injury used similar coping strategies to patients four to seven years post-injury, with acceptance and positive re-interpretation being the most used and denial and behavioural disengagement the least used. Using a stepwise multiple regressions analysis they found that the coping strategies employed explained more of the variance in psychological impact scores than did other significant variables such as age, functional independence and social support, with behavioural disengagement and lack of acceptance being particularly strongly associated with levels of depression and anxiety.

More recently, some research has suggested a predictive relationship between coping and psychological impact following SCI. For instance, as described in Section 1.2.2, Kennedy (1995) conducted a carefully controlled longitudinal examination of the relationship between the coping strategies used, as measured by the Carver, Scheier & Weintraub (1989) COPE questionnaire, and a number of psychological impact variables in a sample of 87 SCI patients up to two years post-discharge. He found a striking stability over the entire observational period in the coping strategies used. Stepwise multiple regression analyses indicated strong predictive relationships between the type of coping strategies used and measures of depression and anxiety within each of the nine observational points, with the use of behavioural disengagement, lack of acceptance and alcohol and drug ideation accounting for large proportions of the variance at most observational points. The coping strategies used at six and at twelve weeks post-injury were also found to significantly predict substantial proportions of the variance in depression and anxiety at later observational points with, for instance, 57% of the variance in anxiety one year post-discharge being accounted for by the use of focusing on and venting emotions, positive reinterpretation and restraint coping strategies at six weeks post-injury.

On the basis of this information, as well as from comparisons between the 25% most and least distressed subjects in his sample, Kennedy (1995) concluded that in SCI patients adaptive coping is associated with the use of acceptance, active coping, positive reinterpretation and growth coping strategies, and concurrent under-utilisation of behavioural disengagement, mental disengagement, denial, focusing on and venting emotions, and alcohol/drug use ideation coping strategies, as measured by Carver et al.'s (1989) COPE questionnaire.

2.4 Summary

Although SCI patients often initially experience emotional distress, most individuals do not experience difficulties in adjusting psychologically to the injury. However, a significant proportion of SCI patients (between one quarter and one third (Kennedy, 1995)) do show levels of depression and anxiety above clinical cut-offs. Levels of depression and anxiety in SCI patients, as well as the prevalence of psychological morbidity, has been found to be constant over the first two or three years post-injury, indicating that psychological adjustment to SCI does not necessarily improve with time. These problems have been found to affect the quality of rehabilitation achieved during hospitalisation, and are associated with poor long-term adjustment to SCI. The type of adaptive and maladaptive coping strategies employed by SCI patients have also been found to be constant over the first three years post-injury, and some studies have indicated the existence of a predictive relationship between the coping strategies used and psychological adjustment to SCI. These results suggest that interventions aimed at improving psychological adjustment to SCI may be beneficial in many cases, and that the promotion of adaptive coping may be a useful target of such interventions.

Section 3

Development of a psychological intervention for people with spinal cord injury

3 Development of a psychological intervention for people with spinal cord injury

3.1 Previous psychological interventions for people with spinal cord injuries

Many specialised spinal cord injury centres in countries with developed economies now have clinical psychologists offering clinical input as part of the standard rehabilitation programme (Kennedy, 1997), and there are numerous reports in the literature of the use and value of psychological interventions during the rehabilitation of patients with SCI (e.g. Brucker, 1983; Trieschmann, 1988). The focus of these interventions has ranged from maximising patient involvement in rehabilitation activities through active goal planning (Kennedy, Walker & White, 1991) to sexual counselling (e.g. Alexander, 1991).

A number of studies have also reported interventions aimed at enhancing psychological adjustment to SCI. The advantages of group based interventions have been emphasised for this purpose, primarily because of the therapeutic potential derived from being supported by and learning from peers, but also because of their cost effectiveness (Eisenberg, 1984). There is however a surprising paucity of detailed descriptions in the literature of the specific approaches employed in such groups, or of theoretical models on which these interventions are based. Moreover, there is also is a striking absence of empirical evidence supporting the effectiveness of such psychological interventions. McAweeney (1996) recently reviewed the literature on psychological interventions for SCI patients over the past 20 years, and of 221 identified studies she found that only 16% had employed a repeated measures design, with only 1% reporting treatment effect size.

Cimperman & Dunn (1974) described developing a series of semi-structured therapeutic groups used to facilitate discussion amongst SCI patients on a range of important topics such as depression, social isolation, future plans and independence. The groups were not formally evaluated, but the authors reported their clinical impressions indicating that the groups constituted a productive and beneficial service to these patients. Eisenberg (1984) has also described successfully running a number of different therapeutic groups with SCI patients, including a patient-family group. These have been aimed at identifying and helping overcome obstacles which prevent patients from accessing and using their psychological skills and resources.

Miller, Wolfe & Marvin (1975) described a well validated study of an eight session group-based intervention aimed at enhancing adjustment to SCI by disseminating important information regarding the medical effects of SCI and their management, and offering an opportunity for patients to discuss their experiences and feelings. Group participants showed significant increases in non-standardised measures of knowledge about SCI and in a measure of self-esteem compared to a control group of SCI patients who did not attend the sessions. The authors conclude that the groups provided an effective means of imparting important information to patients and this improved their adjustment to SCI.

Craig, Hancock, Dickson & Chang (1997) have recently reported the implementation of a ten session group-based cognitive behavioural intervention aimed at alleviating symptoms of depression and anxiety with 28 SCI patients. The programme consisted of training in a range of standard cognitive behavioural skills, such as relaxation, activity scheduling and cognitive restructuring techniques. No significant differences between group participants and matched SCI patient controls were found either immediately after, or one year after, the intervention in standardised measures of depression, anxiety or self-esteem. However, group participants who initially reported levels of depression above a clinical cut-off showed a significantly greater improvement in depression scores both immediately after and one year after the intervention compared to similar matched controls.

This last study is a welcome controlled trial of a psychological intervention, and indicates that patients who experience high levels of depression during rehabilitation can benefit from a cognitive behavioural group intervention. However, inspection of the treatment manual used (Craig, Hancock, Martin & Dickson, 1990) suggests a number of important improvements:

i) This intervention is focused primarily on alleviating symptoms of anxiety and depression. It does not address the wider range of adaptive or maladaptive coping strategies employed by participants in dealing with the consequences of the SCI, or the relation between coping and psychological outcome.

ii) The intervention consists in helping participants acquire a 'menu' of useful skills to deal with negative psychological reactions. Although the treatment is based on general cognitive behavioural principles, it is not grounded on an underlying coherent theoretical model which would provide a structure to the various strategies taught and allow a better understanding of the therapeutic effects achieved. The development of psychological interventions in health care settings which are not firmly grounded theoretically has been criticised by a number of authors for these reasons (e.g. Auerbach, 1989; Chesney & Folkman, 1994).

3.2 Cognitive theory of stress and coping

Lazarus and Folkman have developed an influential cognitive theory of stress and coping which has integrated the empirical findings on the range of cognitive, emotional and environmental variables which influence the coping process (Lazarus, 1966; Lazarus & Folkman, 1984; Folkman & Lazarus, 1988). Within this model, stress is viewed as a transaction between the person and their environment which is personally significant and taxes or exceeds the person's coping resources. The impact of this transaction is mediated by two key processes:

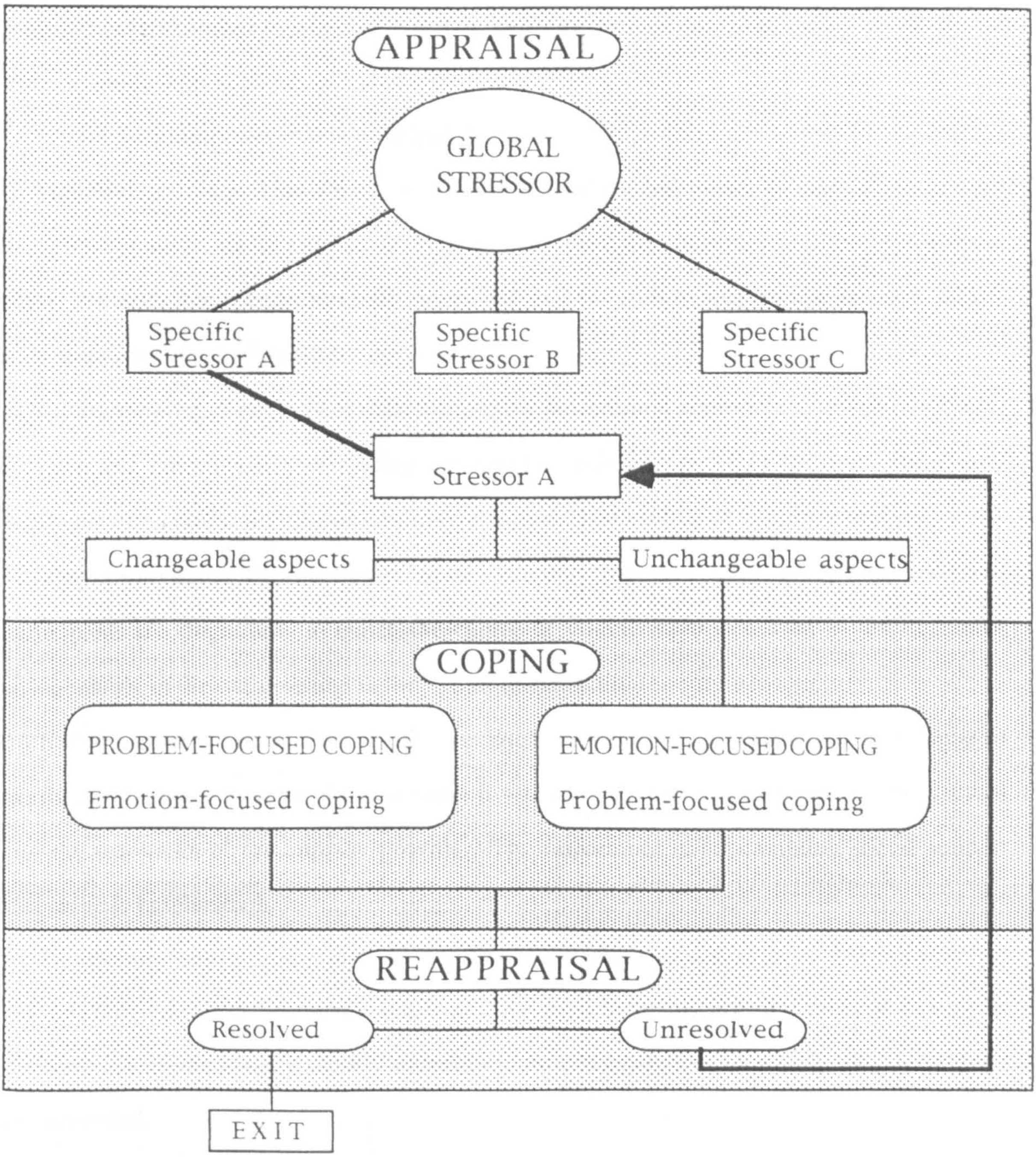
i) Cognitive appraisal. This is the process through which the individual evaluates the given person-environment relationship to establish its significance (primary appraisal), and assesses the options and resources available to change it (secondary appraisal). This will involve evaluating whether the current stressful situation represents an instance of loss, threat or challenge and the extent to which personal goals, commitments or values are affected. It will also be necessary to determine which aspects of the person-environment transaction are amenable to change. Individual differences in appraisal will result from differences in a range of psychological, sociological, health and contextual variables.

ii) Coping. This refers to the cognitive and behavioural strategies employed by the person to manage the specific demands that are appraised as being taxing or exceeding of their resources. Within this model, coping is conceived as the ongoing process of the person's thoughts and actions within a given specific context, and the importance of defining specific stressful situations is emphasised. General stressful situations are both complex and ambiguous, and make it difficult to identify exactly what the person is coping with and how this is being done.

Coping has two major functions: a) managing or altering the problem that is causing distress (problem-focused coping), and b) regulating the emotional responses to the problem (emotion-focused coping). Although both forms of coping will often be employed simultaneously and can be mutually facilitative, problem-focused coping strategies (e.g. problem solving, goal-setting) will generally be relied upon more when situations are appraised as amenable to change, and emotion-focused coping strategies (e.g. relaxation, cognitive reframing) when external situations are appraised as not amenable to change.

Effective coping results from both a realistic and accurate initial appraisal of the person-environment transaction, and a subsequent adequate choice and application of coping strategies (Folkman, 1984). Thus, the person's appraisal of the person-environment transaction must approximate the reality of the specific stressful situation faced in order to avoid maladaptive coping arising either through misjudging the real demands of the situation faced or the resources and skills available to them. Similarly, coping strategies must be adequately matched to an accurate appraisal of changeability in the situation, with problem-focused coping strategies aimed at aspects of the situation which can be changed, and emotion focused coping prioritised when change is necessary in the person's emotional response to the situation. Failure to do this can result in further distress arising from failing to engage in trying to change situations which can be changed, or vice-versa. Effective coping also clearly depends on having the necessary resources and relevant skills to implement appropriate coping strategies, and in particular on the nature of the social context within which coping takes place (Gottlieb, 1988). Reappraisal of the person-environment relationship occurs continually as changes in either the environment or in the person occur, and coping processes must adapt accordingly (Figure 2.1).

Figure 2.1: Cognitive model of stress and coping (from Folkman et al., 1991).



3.3 Coping Effectiveness Training

This cognitive theory of stress and coping has been recently translated into a well defined clinical intervention to help people cope with chronic stress. Coping Effectiveness Training (CET) (Folkman, et al., 1991; Chesney & Folkman, 1994) is a group-based short term intervention aimed at teaching a range of standard cognitive-behavioural stress management techniques together with a meta-strategy derived from the cognitive theory of stress to guide their application.

CET is composed of five principal elements:

i) Appraisal training. This involves initially teaching participants to use affective and behavioural cues to identify global stressors in their lives. The skills for breaking down these global stressors into specific stressful situations, and for then evaluating the extent to which such situations are changeable are developed.

ii) Coping training. A range of standard cognitive-behavioural approaches for both problem-focused and emotion-focused coping are taught, including problem solving, social and communication skills, activity scheduling, relaxation, and aspects of cognitive therapy.

iii) Appraisal-coping fit. Flexibility in the coping strategies used is encouraged, and participants are taught how to match the choice of coping strategies used to the degree of changeability in the situation and in their emotional reactions to the situation.

iv) Social support training. Participants are taught the skills to appraise their social support needs, and to match the type of social support sought to the specific demands of the stressor and the resources of the support provider. The importance of maintaining social support resources is emphasised.

v) Developing self-efficacy and maintaining the intervention's effects. Participants are encouraged to develop their personal efficacy in coping by practising their skills in a range of different situations and by closely examining the circumstances in which they have been unsuccessful.

CET has been recently successfully applied in an eight session group-based intervention for helping homosexual men cope with HIV infection (Folkman et al., 1991). In a pilot study with 40 subjects, group participants showed a significantly greater improvement in measures of depression and positive moral compared to matched controls both immediately after the intervention and at six weeks follow-up (Chesney & Folkman, 1994). These improvements in mood were associated with changes in coping, with group participants showing a greater use of adaptive coping strategies such as planful problem solving and positive reappraisal, and a decreased use of maladaptive coping strategies such as escape-avoidance and self-blame. Preliminary results from a larger randomised clinical trial show similar encouraging results (Chesney, Folkman & Chambers, in press). There are also plans to apply CET to other populations with chronic stress, such as coronary heart disease patients (Chesney, 1993).

3.4 Adapting Coping Effectiveness Training for people with spinal cord injuries

The first aim of this project was:

Aim 1: To develop a group-based intervention for improving psychological adjustment to SCI and enhancing adaptive coping in recently injured patients.

The CET model offers an attractive structure within which to formulate such an intervention for a number of reasons:

i) It is a group-based intervention firmly grounded on a well validated cognitive theory of stress and coping.

ii) It offers a flexible meta-strategy which emphasises both appraisal and coping processes for translating the major tenets of cognitive theory of stress and coping into action, as well as the more usual training in a 'menu' of standard cognitive behavioural coping skills.

iii) There is some empirical evidence for its effectiveness within a population of HIV positive men. Some of the similarities between this and the SCI population (e.g. primarily young men facing chronic stress) suggests it could similarly be effective with this client group.

The CET programme described above was therefore adopted as the overall structure within which the group-based psychological intervention would be developed. This structure had to be adapted to the specific needs of the SCI client group and the characteristics of the stressors which they typically face. A new programme of sessions was therefore constructed by developing their content in a way which retained the CET structure and principal components but also incorporated other material which was clinically important in working with this client group. A range of other relevant sources of information were therefore studied and aspects of them incorporated into the new intervention:

a) Standard cognitive behavioural stress management techniques such as problem solving (e.g. Meichenbaum, Henshaw, & Himel, 1982; Nezu, 1986), activity scheduling (e.g. Beck, Rush, Shaw & Emery, 1979) cognitive restructuring (e.g. Meichenbaum, 1985; D'Zurilla & Nezu, 1982), aspects of cognitive therapy (e.g. Hollon & Beck, 1989), social and communication skills (e.g. Lewinsohn & Hoberman, 1982), and assertiveness training (Dunn, Van Horn & Herman, 1981).

b) Other well validated group-based interventions for chronic stress. In particular, Antoni, Baggett, Ironson, LaPerriere, August, Klimas, Schneiderman, & Fletcher (1991) Cognitive Behavioural Stress Management group for HIV positive men was examined, and the importance given to developing skills to challenge negative assumptions, and the need to discuss common maladaptive coping strategies and their detrimental effects was seen to be relevant for the present intervention. Keefe's well validated Pain Coping Skills Training group therapy manual (1996, personal communication) was also studied, and the usefulness of having frequent review and summary slots throughout the intervention as an aid to learning was recognised from this. The emphasis given to developing good relaxation skills, which has been confirmed in reports of clinical work with SCI patients (Curcoll, 1992), was also seen to be relevant. The treatment manual (Craig et al., 1989) for the recently evaluated cognitive-behavioural group for SCI patients (Craig et al, 1997) was studied in detail. The discussions on the specific stressors arising from the SCI and some of the examples of typical negative assumptions about the consequences of the SCI were found to be instructive. However, their group did not aim to teach detailed appraisal skills or develop meta-strategies for applying a range of adaptive coping skills, and focused on the alleviation of symptoms of depression and anxiety.

c) Unpublished clinical information available at the NSIC. In particular, a wealth of clinical knowledge and expertise was accessed through detailed discussions with the Consultant Clinical Psychologist working there, who has 12 years of clinical experience in this field, as well as from patient information leaflets available at the NSIC (e.g. "Coping with spinal cord injury", Kennedy, 1994).

The CET intervention had to be constructed to meet the service requirements of the setting within which it would be implemented, and moulded to fit into the overall rehabilitation programme for SCI patients at the NSIC. An initial consultation process with all other key professional groups involved in the rehabilitation programme was therefore carried out to achieve a better understanding of these requirements. Detailed consideration also had to be given to some of the specific difficulties which have been frequently encountered by other workers in implementing psychological interventions with SCI patients (Craig & Hancock, 1994). These key issues are discussed further in sections 4 and 5.

All this information was initially collated and integrated by the researcher to produce a first draft of the therapy manual which would be used to conduct the intervention, and which was specifically developed for this project. This contained a detailed description of the structure and content of each session. This draft was inspected by the Consultant Clinical Psychologist at the NSIC, amended accordingly, and a range of clinical examples and relevant exercises added to produce a second draft. A final draft which aimed at simplifying some of the language and content of the sessions was later completed by the researcher. Over-heads for didactic presentations and patient hand-outs were developed from the therapy manual.

3.5 Content of the Coping Effectiveness Training for people with spinal cord injury therapy manual

The CET group-based intervention developed consists of seven sessions, each lasting between 60 and 75 minutes, run over a four week period. All sessions include a mixture of didactic presentations of theoretical and skills-training material, exercises for raising awareness of key issues and for practising the skills being taught, and time allocated for open group discussions about important themes or significant issues raised by participants. The focus is on current identifiable problems and on the psychological and social difficulties which might be faced after hospital discharge, and many realistic examples drawn from previous NSIC patients' experiences are used to enrich the sessions. Much effort is put into facilitating active participation by all group members, and to limit the amount of didactic lecturing by the group conductor. Encouraging the development of participants' perceived self-control and confidence in dealing with the consequences of the SCI is a fundamental aim of the intervention, and every opportunity is used to reinforce this throughout the sessions. Homework exercises are suggested after each session which, given the difficulties which many participants have in writing, are focused on asking participants to note the occurrence at other times of some of the phenomena described in the sessions and to practice the skills developed in other settings.

Session 1 introduces the topic of stress and stress reactions, and includes an examination of the ways in which the SCI is a source of stress. A brief overview of cognitive theory of stress and coping then allows an introduction to the key processes of appraisal and coping.

Session 2 focuses on appraisal skills training, including disaggregating global stressors and assessing changeability in stressful situations. Coping is discussed in the context of alleviating distress either by changing external aspects of problem situations or changing our emotional reactions to these, and the match between appraisal and coping is considered.

Session 3 aims to teach problem solving skills. A range of realistic social problem scenarios are used to develop these skills and to start exploring typical difficulties which might be faced at present and on leaving hospital.

Session 4 begins with an examination of typical emotional reactions to SCI, and this allows a brief introduction to cognitive models of depression and anxiety. A debate on the type of pleasant activities which are possible with SCI is initiated, and activity scheduling skills are then developed. Auto-hypnotic relaxation is introduced to the group, and an audio-tape especially developed for working with SCI patients (Kennedy, 1997, Autohypnosis Training Cassette) is issued to all participants.

Session 5 explores the range of possible negative assumptions about the consequences of SCI, and their effects on thinking and emotions. Typical negative automatic thoughts are examined, and cognitive therapy skills for challenging negative thoughts and assumptions are taught.

Session 6 emphasises the importance of flexible individualised coping, and a range of commonly used adaptive coping strategies are described. The importance of a continual reappraisal of current coping is highlighted as necessary for dealing with change. Key maladaptive coping strategies are described and their long-term detrimental effects discussed.

Session 7 focuses on the importance of social support for good long-term adjustment to SCI, and includes an examination of what is required in choosing, obtaining and maintaining appropriate social support. Assertiveness skills are further developed in this context.

A detailed description of the programme is given in the Treatment Manual, which is now being prepared for internal publication. The manual is not included here because of word limitations, but a detailed summary is given in Appendix C.

Part II: Implementation and evaluation of the Coping Effectiveness Training intervention for people with spinal cord injury

Section 4

Introduction

4 Introduction

4.1 Rationale for this study

The review of the literature presented in section 2 indicates that, although the majority of people with SCI do not experience psychological problems as a result of the injury, approximately between a quarter and a third do exhibit clinical levels of depression and anxiety during rehabilitation. There is some evidence that such psychological difficulties can interfere with the effectiveness of the rehabilitation process and hamper long-term adjustment to SCI. Levels of depression and anxiety have been found to be stable over the first two to three years post-injury, suggesting that psychological adjustment to SCI does not necessarily improve with time.

Similarly, although people with SCI have been found to employ a range of different coping strategies in managing the consequences of the injury, the type of coping strategies employed has been found to be stable over the first two to three years post-injury. A significant relationship has been found between the coping strategies used and current levels of depression and anxiety, as well as a predictive relationship between current coping and future levels of psychological problems.

This suggests that it could be useful to implement interventions aimed at improving psychological adjustment to SCI as part of hospital rehabilitation. Enhancing the use of adaptive coping skills, and discouraging the use of maladaptive coping strategies, would seem to be a promising focus of such an intervention.

Unfortunately, a review of the literature on psychological interventions for SCI indicates that, although a number of authors report the use and value of such interventions, especially group-based approaches, there are few detailed descriptions either of the content or the theoretical background of such psychological interventions. In particular there is a severe paucity of empirically evaluated interventions, with only one recent controlled study providing evidence of treatment effects (Craig et al, 1997).

4.2 Aims and hypotheses

4.2.1 Development

As described in section 3, the first aim of this project was therefore to develop a psychological intervention aimed at improving psychological adjustment to SCI and promoting adaptive coping. The group-based intervention which has been developed is grounded on cognitive theory of stress and coping, and is an original adaptation of CET to this client group. It consists of seven 60 to 75 minute long sessions run over a four week period (Appendix C).

4.2.2 Implementation

A number of authors have reported experiencing a range of serious difficulties in implementing group-based psychological interventions for people with SCI (Craig & Hancock, 1994; Roessler, Milgram & Ohlson, 1976; Cimperman & Dunn, 1974). These can be summarised as follows:

a) Difficulties in engagement. Trieschmann (1988) has suggested that the SCI population predominantly consists of young action-oriented males who are typically more interested in dealing with things than in dwelling on thoughts and feelings. Participation in a psychological group which may include self-disclosure and group discussion may be perceived as threatening and regarded as incongruent with being self-reliant and in control. Similarly, denial or avoidance of the psychological consequences of SCI can make participation in a psychological group seem irrelevant, and this avoidance may be supported by the busy schedule of physical rehabilitation activities in hospital as well as patients' own initial beliefs that they will walk again.

b) Poor attendance. Physical illness and routine medical interventions are frequent during hospital rehabilitation, and can contribute to erratic attendance to psychology groups. This can lead to difficulties in developing group cohesiveness and further undermine the credibility and effectiveness of these interventions. A number authors (e.g. Roessler et al., 1976;

Cimperman & Dunn, 1974) have reported elevated attrition rates as high as 60% to 80% in such groups.

c) Systemic issues. Given the physical and medical focus of most hospital rehabilitation, it can be difficult to obtain the co-operation of other professionals in supporting the implementation of a psychological intervention as this may be considered to be a low priority in patients' busy schedule of physical rehabilitation. This can lead to further poor attendance arising from schedule conflicts and an increasingly low priority given by patients to the groups.

A second aim of this project was therefore:

Aim 2: To determine whether it is possible to implement the Coping Effectiveness Training intervention for people with spinal cord injury as a standard component of a hospital rehabilitation programme.

The extent to which this second aim was achieved would be evaluated via the following questions:

a) Was it possible to incorporate the seven session CET for SCI group as a regular component of the busy rehabilitation schedule, and what was the optimal way of achieving this.

b) Could the support and collaboration of other rehabilitation staff be gained through developing a clear and meaningful rationale for the value of the CET for SCI programme and by engaging with them in an ongoing process of communication and liaison.

c) Was it possible to achieve satisfactory patient participation in such a programme, as measured by engagement, attendance and attrition rates, by actively confronting some of the difficulties described above.

4.2.3 Evaluation

Given the paucity of evidence in the literature on the effectiveness of psychological interventions for people with SCI, it was considered to be important to conduct a well controlled empirical evaluation of the CET for SCI intervention developed here. The third aim of this project was therefore:

Aim 3: To evaluate the efficacy of the Coping Effectiveness Training intervention for improving psychological adjustment, increasing adaptive coping and reducing maladaptive coping in people with spinal cord injury.

In particular, it was of interest to determine whether this intervention represented an improvement over the standard rehabilitation treatment offered at the NSIC. Psychological adjustment to SCI would be assessed via measures of depression, anxiety and patients' self-concept. Coping would be assessed via a measure of the coping strategies employed. The empirically determined analysis of what constitute adaptive and maladaptive coping strategies in SCI patients, obtained by Kennedy (1995) using the COPE questionnaire (Carver et al., 1989) and discussed in section 2, would be used:

a) Adaptive coping strategies: i) Acceptance, ii) Active coping, and iii) Positive reinterpretation and growth.

b) Maladaptive coping strategies: i) Behavioural disengagement, ii) Mental disengagement, iii) Denial, iv) Focusing on and venting emotions, and v) Alcohol/drug use ideation.

4.2.4 Hypotheses

Five hypotheses can be specified in relation to the third aim described above:

Hypothesis 1:

H1: There will be a significantly greater reduction in measures of depression in participants who attend the CET for SCI intervention than in matched controls receiving the standard rehabilitation treatment.

H0: There will not be a significantly greater reduction in measures of depression in participants who attend the CET for SCI intervention than in matched controls receiving the standard rehabilitation treatment.

Hypothesis 2:

H1: There will be a significantly greater reduction in measures of anxiety in participants who attend the CET for SCI intervention than in matched controls receiving the standard rehabilitation treatment.

H0: There will not be a significantly greater reduction in measures of anxiety in participants who attend the CET for SCI intervention than in matched controls receiving the standard rehabilitation treatment.

Hypothesis 3:

H1: There will be a significant change in the self-concept of participants who attend the CET for SCI intervention.

H0: There will not be a significant change in the self-concept of participants who attend the CET for SCI intervention.

(Measures of self-concept were not available for the control group and so a matched comparison was not possible.)

Hypothesis 4:

H1: There will be a significantly greater increase in the use of adaptive coping strategies in participants who attend the CET for SCI intervention than in matched controls receiving the standard rehabilitation treatment.

H0: There will not be a significantly greater increase in the use of adaptive coping strategies in participants who attend the CET for SCI intervention than in matched controls receiving the standard rehabilitation treatment.

Hypothesis 5:

H1: There will be a significantly greater decrease in the use of maladaptive coping strategies in participants who attend the CET for SCI intervention than in matched controls receiving the standard rehabilitation treatment.

H0: There will not be a significantly greater decrease in the use of maladaptive coping strategies in participants who attend the CET for SCI intervention than in matched controls receiving the standard rehabilitation treatment.

Section 5

Method

5 Method

5.1 Implementation of the Coping Effectiveness Training groups

5.1.1 Consulting and liaising with other rehabilitation staff

The success of this project depended fundamentally on being able to obtain the support from the rehabilitation staff who were involved on an ongoing basis with patients. A thorough process of consultation and liaison with all relevant rehabilitation staff was therefore conducted at an early stage of the project. Individual meetings were held with the heads of Nursing, Physiotherapy and Occupational Therapy staff, with the Ward Managers of all six hospital wards and with the Information Officer, and group meetings held with all Physiotherapists and Occupational Therapists. The aims and potential short and long-term benefits of attending the CET groups were discussed. The groups were described as part of a research project, and their effectiveness would be empirically evaluated. A brief summary of the content of each session was offered, and emphasis given to the skill learning focus of the groups. Their views on what might be the best times to run the groups to avoid schedule conflicts were sought, and an agreement was established whereby if they were given a list of participants before the beginning of the CET groups they would endeavour to avoid schedule conflicts by arranging alternative appointments with patients. This procured the prioritisation of the CET groups which was necessary to achieve a satisfactory participant attendance.

5.1.2 Schedule for the Coping Effectiveness Training groups

It was decided that the CET group sessions would be held twice a week. It was thought this would enhance participant engagement by making the group a prominent aspect of their rehabilitation during a short four week period, and would reduce the number of patients who could not participate because of being discharged before their involvement in the research programme was completed. The choice of time for the sessions was crucial to avoid not only frequent schedule conflicts, but also the most common visiting hours and periods of hospital leave. Tuesdays and Wednesdays at 4.15 p.m. were chosen as the best times.

A sequence of three 7 session CET groups were run over a period of six months. These will be referred to as Group 1, Group 2 and Group 3. There was a gap of approximately two months between groups to ensure that enough patients could be recruited for each group.

5.2 Ethical considerations

A proposal was submitted to the local Research Ethics Committee in July 1996, and ethical approval granted in August 1996 (Appendix A).

The research was explained thoroughly to potential participants by both written information and verbally in person, and a number of opportunities were offered to ask questions before seeking consent. Consent forms were then completed before the initial assessment (Appendix B). The option of attending a CET group but not participating in the research was offered to all potential participants.

Participants were assessed individually and in private, and confidentiality was ensured for all the information given. In the event that a participant became distressed during the assessment, they would be offered an opportunity to take a break or to continue at another time. Contact would be made with other professionals involved in their care if necessary. It was also made clear that they could withdraw their consent to participate in the research, or indeed stop attending the CET group, at any time.

5.3 Design

A non-randomised controlled trial was used to evaluate the CET for SCI intervention. Participants who attended the CET groups were compared on a range of outcome measures to a matched control group who had only received the standard rehabilitation treatment available at the NSIC. The measures were taken on three occasions: before, immediately after and six weeks after the intervention.

5.4 Participants

5.4.1 Intervention group

Participants for the intervention group were recruited from the NSIC and were currently engaged in the standard rehabilitation programme offered. Selection criteria consisted of:

i) Newly injured patients (i.e. not rehospitalised). ii) Traumatic injuries. iii) Ages between 16 and 65. iv) Able to speak English. v) Had already attended the Patient Information Group (described below).

A few patients were excluded because clinical staff considered that the effects of head injury or of pre-existing psychopathology would severely impede their participation in the groups.

5.4.2 Control group

Participants for the control group were selected from a data base previously collected for the longitudinal study of psychological adjustment and coping in SCI patients recently completed by Kennedy (1995) and described in section 2.2. Data was available for 87 patients who had received the standard rehabilitation treatment offered at the NSIC. The same criteria had been used in their selection for the original study. Data had been collected every six weeks throughout their stay in hospital, and at several time points up two years post-discharge.

Obtaining a good match between intervention and control groups on a range of key variables was critical for the success of this project, and much effort was dedicated to achieving this. Thus it was important to match both groups on:

a) A range of control variables which the literature suggested might influence adjustment to SCI, namely time since injury, level of functional independence, and to a lesser degree of importance, level and completeness of injury, sex, age and social support.

b) Pre-intervention measures of outcome, namely depression, anxiety, and use of adaptive and maladaptive coping strategies, to ensure that treatment effects were not due to differing initial scores.

Clearly it was unlikely that this match would have been achieved by randomly selecting the control group from the data base, and a more exacting procedure was therefore pursued. Thus, control group participants were individually chosen from the data base in order to achieve a good match with the intervention group pre-intervention measures for all the above significant variables. This was a complicated process given the large number of variables which had to be matched. It was not possible to obtain matched pairs of participants, and the aim was simply to match the average scores of the two groups for the range of variables. A rigorous procedure was followed to achieve this match, and this was conducted strictly blind to the intervention group post-intervention and follow-up scores, and the control group scores at future time points.

Thus, a 'near matched pair' was initially found for every intervention participant by sequentially finding all the data base patients who had a similar time since injury and whose functional independence, depression and anxiety scores were matched to the pre-intervention scores of the intervention participant to within a specified range. A range of plus or minus half a standard deviation of the intervention group pre-intervention scores was chosen because this was considered to be sufficiently small to be likely to result in a good match between the average scores of the two groups, whilst at the same time being sufficiently large to allow all the 'near matched pairs' to be obtained. If more than one data base patient met this criteria, then one was chosen in order to match the level and completeness of injury, age, sex, and social support variables. Preliminary t-tests were then carried out, and these indicated that a suitable match had also simultaneously been achieved on the measures of all the adaptive and the maladaptive coping strategies, except on Alcohol/drug use ideation. Two of the previously chosen data base patients were therefore exchanged to achieve a better match on this variable, whilst retaining the previously achieved match on the other variables.

5.5 Measures

5.5.1 Demographic data

Demographic information was initially collected and consisted of sex, marital and employment status before the injury, date of birth, date of injury, cause of injury, level of injury and whether the injury was complete or incomplete.

5.5.2 Functional independence

Levels of functional independence were assessed using the Functional Independence Measure (FIM) (Hamilton & Granger, 1990). This is a 18 item self-report measure which assesses six areas of function: self-care, sphincter control, mobility, locomotion, communication and social cognition. Each item is evaluated on a 7-point scale, with 7 being complete independence and 1 being total assistance required, yielding a total score ranging between a minimum of 18 to a maximum of 126. The FIM has been widely used in studies with SCI patients (e.g. Kennedy, 1995), and has satisfactory psychometric properties, with good reliability (Segal, Ditunno & Stass, 1993) and validity (Grey & Kennedy, 1993).

5.5.3 Depression

Depression was measured using the Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock & Erbaugh, 1961). This is a well validated self-report measure consisting of a list of 21 descriptive groups of four items assessing different symptoms of depression. Total scores range between 0 and 63, with high scores indicating more severe depression. The BDI has been found to be a valid and sensitive instrument for measuring depression in SCI patients (Hancock et al., 1993; Judd et al., 1991, Kennedy, 1995), and has been widely used with this client group. A cut-off of 14 is believed to differentiate effectively between clinical and non-clinical cases of depression, and has been used for this purpose in previous studies of SCI (e.g. Craig et al., 1997).

5.5.4 Anxiety

Anxiety was measured using the State Anxiety Inventory (SAI) (Form Y1; Spielberger, Gorsuch, Lushene, Vagg & Jacobs, 1983). This is a 20 item self-report measure which asks people to describe how they feel at the moment by rating each item (e.g. I feel nervous, I am worried, I feel tense) of a 4-point Likert-type scale. Total scores range between 20 and 80, with high scores indicating more severe anxiety. This is a well validated measure (Spielberger et al., 1983), which has also been widely used and shown to be a valid and sensitive measure of anxiety for this client group (Hancock et al., 1993; Craig et al., 1994, Kennedy, 1995). A cut-off of 42 is believed to differentiate effectively between clinical and non-clinical cases of anxiety and has been used for this purpose in previous studies of SCI (e.g. Craig et al., 1997).

5.5.5 Self perception

The Self Perception Scale (SPS) (Kennedy, Gorsuch & Marsh, 1995b) was used to assess self-perception with regards to a number of separate dimensions. It consists of 11 pairs of bipolar adjective items (e.g. Satisfied/Dissatisfied, Optimistic/Pessimistic, Sociable/Withdrawn) each on a 5-point Likert-type scale. For instance, the Optimistic/ Pessimistic dimension can be evaluated as very optimistic, slightly optimistic, neither optimistic or pessimistic, slightly pessimistic or very pessimistic, and similarly for the other dimensions. The measure is completed three times on each assessment occasion according to the participant's perception of a) 'how I am now', b) 'how I would be without the injury', and c) 'how I would be ideally'. For each item an 'AB negative' score is obtained, which is the difference between how people perceive themselves now and how they believe they would be without the injury, and the sum of these scores yields a 'Total AB negative' score. This score is an indication of the extent to which the person perceives themselves as changed as a result of the injury, with large negative scores indicating greater adverse change. This scale was developed for and used in a previous study with SCI patients (Kennedy et al., 1995b), and is an adaptation of other well validated measures of self-concept already in use with other chronically disabled groups, (Tyerman, 1987; Linkowski, 1971). Its psychometric properties are in the process of being developed (Kennedy et al., 1995b).

5.5.6 Coping strategies

The coping strategies employed were measured using the COPE (Carver et al., 1989). This is a 60-item self-report measure which evaluates the use of 15 different types of coping strategies, namely a) Positive reinterpretation and growth, b) Active coping, c) Planning, d) Seeking social support for emotional reasons, e) Seeking social support for instrumental reasons, f) Suppression of competing activities, g) Religion, h) Acceptance, i) Mental disengagement, j) Focus on and venting emotions, k) Behavioural disengagement, l) Denial, m) Restraint coping, n) Ideation of alcohol/drug use, and o) Humour. Every strategy is measured by four items, each scored between 1 and 4 according to whether the strategy suggested by the item is not used at all or used a lot. Each strategy therefore receives a score between 4 and 16, with higher scores indicating greater use of the strategy. Participants were asked to answer each item situationally, i.e. specifically in relation to their injury, and to respond according to their present feelings, reactions and experiences. It has satisfactory well established psychometric properties (Carver et al., 1989), and has been used to assess coping in several previous studies with SCI patients (Kennedy et al., 1995; Kennedy 1995).

5.5.7 Social support

Social support was measured using the Social Support Questionnaire (SSQ) (Sarason, Sarason, Shearing & Pierce, 1987). This asks participants to list the people who they can count on for social support in six varying situations (e.g. can really count on them to distract them from their worries when they feel under stress; accepts them totally, including their worst and best points) and to evaluate how satisfied they are with each situation on a scale from 1 to 6. This provides two measures; the SSQN is the total number of people listed in the six items; and the SSQS which is the average of the six satisfaction ratings, with higher values indicating greater satisfaction. The SSQ has been widely used, and has satisfactory psychometric properties (Sarason et al., 1987). The SSQ has also been used previously with SCI patients (Kennedy et al., 1995; Kennedy, 1995).

5.5.8 Participant evaluation of the Coping Effectiveness Training groups

The post-intervention assessment was also used to obtain participants' evaluation of the CET group. After completing all standardised measures, participants were initially asked to rate the group in terms of its level of interest for them, and its usefulness in making the consequences of the injury more manageable. Simple 5-point Likert-type scales, anchored at 1='not at all interesting', 3='fairly interesting' and 5='extremely interesting', and similarly for usefulness, were used for this. A semi-structured interview approach was then used to obtain participants' qualitative responses to the following areas of inquiry:

i) What aspects of the group had been helpful. ii) What aspects had been unhelpful.
iii) What would they have had liked to have more off. iv) What might they recommend was reduced or removed from the group.

Responses were recorded by taking notes, and this section of the assessment lasted approximately ten to fifteen minutes.

5.6 Treatment

5.6.1 Control group

Control group participants had received the standard rehabilitation treatment offered at the NSIC between 1990 and 1993. This treatment included primarily medical, nursing, physiotherapy and occupational therapy interventions, and these have not changed in any significant way since then.

Clinical psychology input was also available, with individual patients being referred to the Clinical Psychology Department at the NSIC and treatment offered by a clinical psychologist when appropriate. Neither the criteria for offering clinical psychology input, nor the clinical psychology resources available had changed in any significant way between the two observation periods.

All patients had attended the Patient Information Group as part of their rehabilitation, in most cases soon after they had first left bed rest and were mobile in a wheelchair. This group consists of a series of 10 lectures focusing on different aspects of the SCI, such as skin, bladder and bowel management, sexuality, wheelchair use and issues related to returning to the community. It is an important component of the rehabilitation programme and is routinely run by an experienced Information Officer. This has again not changed in any significant way in the last 10 years.

5.6.2 Intervention group

Intervention group participants received all components of the standard rehabilitation treatment available at the NSIC described above, but in addition also attended one of the three CET groups. This was the only significant difference in the treatment they received compared to control group participants. All intervention group participants had attended the Patient Information Group, and were invited to attend the CET group within one month of its completion.

The three CET groups were run according to and closely following the treatment manual which had been previously prepared (see Section 2.5 and Appendix C). Each participant received a copy of the over-heads used in each session, which provided a summary of the material covered.

Group 1 was conducted by the Consultant Clinical Psychologist at the NSIC, with the researcher attending this group as a non-participating observer. This provided him with training in conducting such a group with SCI patients, and ensured a continuity in the content and style of future groups. Groups 2 and 3 were conducted by the researcher on his own. The Consultant Clinical Psychologist attended one session in Group 3 as a non-participant observer.

5.7 Procedure

5.7.1 Recruitment and engagement of participants

Following ethical approval (Appendix A) and the consultation and liaison procedures described above, a list of all current patients who met the selection criteria and who might wish to participate in a CET group was obtained from the Ward Managers of all six wards at the NSIC. This procedure was repeated before each of the three CET groups to gain access to all new patients.

Potential participants were then approached individually in the ward. The aims and content of the CET group were briefly described, and they were invited to attend. As recommended by Craig & Hancock (1994) for their cognitive-behavioural groups with SCI patients, the skills-training nature of the group was emphasised, but it was also described as an opportunity to exchange information and experiences with other patients. The research project was also briefly described, and the patient was invited to participate in this. Information leaflets for the CET group and for the research project were left with them to consider (Appendix B).

Craig & Hancock (1994) have emphasised the importance of engaging participants by "getting to know them" before the beginning of the intervention, and this was considered to be important for this project. Potential participants were therefore met again about one week later and an opportunity given to ask questions or voice doubts about the CET group or the research. This often lead to useful discussions which allowed the researcher to allay any existing concerns about the groups and begin to establish a comfortable relationship with the patient.

Those participants who were interested in attending the groups and participating in the research were met a third time and asked to sign a research consent form (Appendix B). This time was also used as a further opportunity to engage participants by asking them whether there were any topics they were particularly interested in discussing in the CET group. An appointment was then arranged to complete the initial assessment.

5.7.2 Assessment

Intervention group participants were assessed by the researcher in the week before the beginning of the CET group, in the week after the end of the CET group, and six weeks after the CET group had finished. Assessments were carried out in quiet rooms on the wards, and lasted approximately 45 minutes.

Given that many patients were not able to write, questionnaire items were read by the researcher, participants offered a list of possible responses, and their chosen answers recorded by the researcher onto the questionnaire. The BDI was treated slightly differently in that it was given to the participants to read to allow them to make the required choice between alternative statements.

5.7.3 Intervention

All groups were held in a large room at the NSIC which was regularly used for the Patient Information Groups and was therefore a place where all participants had already attended a group in. Given the busy rehabilitation schedule of most patients, it was found to be helpful to remind participants about the CET group at some stage during the day before each session. Ward staff were asked to help bring participants who were in bed-rest, either because of a recent medical intervention or due to physical complications, but still wished to attend the CET session. Participants who were not able to attend a session were later given the relevant hand-out and offered an opportunity to discuss the content if they wished to.

Section 6

Results

6 Results

6.1 Data analysis

This section begins by reporting on the results of the process of implementing the CET. namely whether it was possible to incorporate the CET group as a regular component of the rehabilitation schedule. the extent to which the support and collaboration of other rehabilitation staff was gained. and whether a satisfactory patient participation was achieved.

The results of the evaluation of the CET group are then presented. Independent t-tests were initially used to examine pre-treatment differences between treatment and control groups in the range of demographic (age. sex. level and extent of injury. and time since injury). control (FIM. SSQN and SSQS). and outcome (BDI. SAI and COPE) variables.

Outcome data (BDI. SAI. and COPE) were then analysed. initially using Kolmogorov-Smirnov Goodness of Fit tests to check the distribution of scores for each variable. This was in each case not found to be significantly different from a normal distribution. except for the 'Alcohol/Drug use' COPE subscale. Repeated measures two-way analysis of variance (ANOVA) was then used to test for differences between intervention and control groups and changes over time. Treatment effects were ascertained from the presence of significant group by time interactions. and post-hoc Newman-Keuls tests were used to locate the source of each interaction (this test is recommended for designs with less than five repeated measures (Howell. 1992)). The data for the 'Alcohol/ Drug use' COPE subscale was not analysed statistically as ANOVA could not be used and the presence of significant interaction effects could not be easily established through other analyses.

Kolmogorov-Smirnov Goodness of Fit tests indicated that data was not normally distributed for the Self Perception Scale (SPS), as is required for ANOVA. Non-parametric Friedman's tests were therefore used to analyse this data. and as no control group data was available. only significant changes over time were analysed.

The qualitative data collected for the participant evaluation of the CET groups was categorised according to a thematic classification of the principal issues raised (Banister, Burman, Parker, Taylor & Tindall, 1994), and a summary is presented.

Finally, two post-hoc analyses were carried out to further explore the data. Firstly, as a first step towards beginning to assess which participants benefited most from the CET groups, repeated measures ANOVAs were used to test for differences between the outcome data for participants above and below clinical cut-off scores for depression and anxiety. Secondly, repeated measures ANOVAs were used to test for differences between the outcome data obtained for Group 1 (run by the Consultant Clinical Psychologist) and Groups 2 and 3 (run by the researcher), and these results are presented in Appendix E.

A substantial number of ANOVAs (N=18) and Friedman tests (N=12) were carried out in this analysis, with an increased risk of type 1 errors. This was not however judged to be sufficient to warrant using a more stringent significance level than the usual $p < 0.05$, though it is recognised that the degree of confidence in borderline results may therefore be diminished.

6.2 Implementation of the Coping Effectiveness Training groups

6.2.1 Incorporating the Coping Effectiveness Training group into the rehabilitation programme

Few problems were experienced in running the CET groups once they had been carefully set up, and they did become accepted amongst staff as an ongoing standard component of the rehabilitation programme. A close liaison with the Information Officer was successfully established which effectively linked attendance at the Patient Information Group to an invitation to attend the CET group. Positive feedback about the value of the CET group was received from the Physiotherapy and Occupational Therapy heads of staff and from some of the Ward Managers. They said they had appreciated the frequent communication and ongoing feedback on the CET programme. The good collaboration established with rehabilitation staff was confirmed in their willingness to re-allocate their appointments with patients when they were attending the CET group, and there were very few schedule conflicts throughout the three groups. It is inferred that the procedures described in section 5.1 were instrumental in achieving this high degree of interest and support from rehabilitation staff.

6.2.2 Patient participation

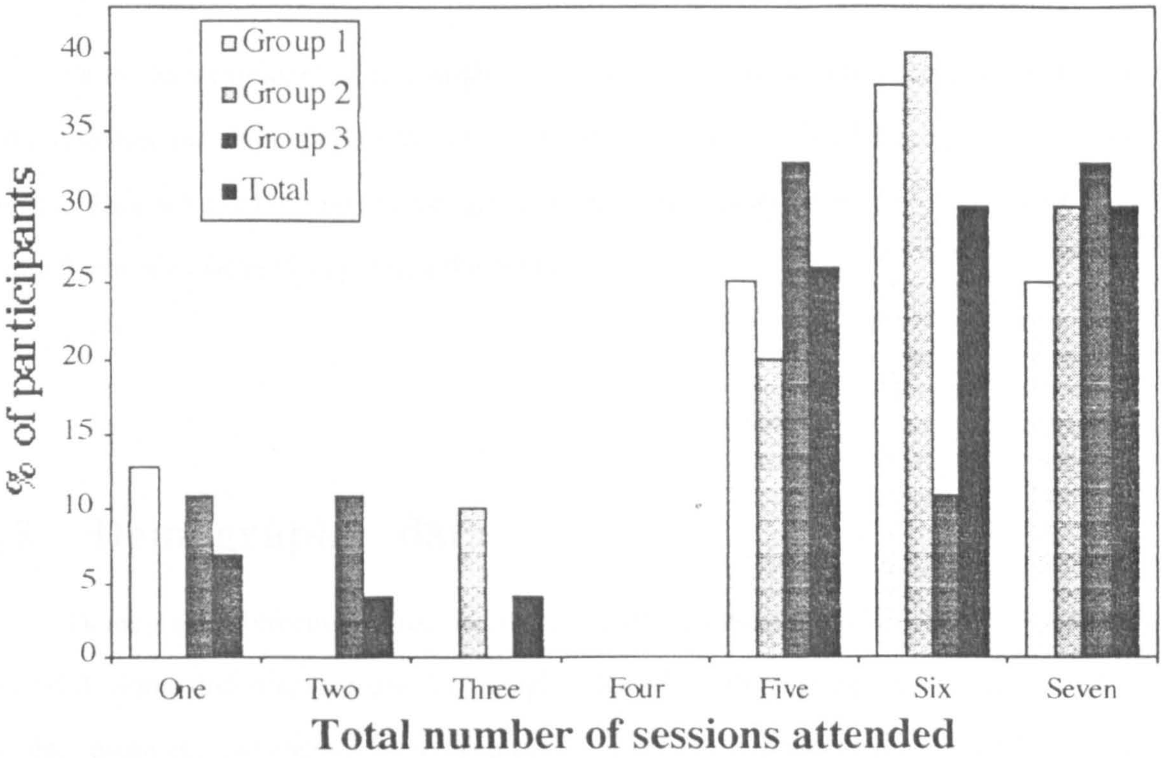
A total of 32 patients satisfied the selection criteria and were invited to attend one of the three CET groups and participate in the research. Of the 32, eight (25%) did not wish to attend the groups. Thus 75% of patients who satisfied the selection criteria and were invited decided to attend the CET group.

Group 1 had eight initial members. Only seven agreed to participate in the research, with one person choosing to attend the group but not wanting to participate in the research. Group 2 had ten initial members. All agreed to participate in the research. Group 3 had nine initial members. Only six satisfied the research selection criteria, with the other three members having non-traumatic injuries. These three patients had been recommended by ward staff as they thought they might benefit from the CET group. They were allowed to attend the group because no other patients were available at the time who did meet selection criteria, and ensuring a total initial number of group members similar to the that in the previous groups was thought to be therapeutically important to establish good group cohesion.

Of the 27 initial group members, four (15%) stopped attending the groups and said they did not wish to continue as part of the research. Three of them said they were not finding the groups useful, the fourth person was discharged from hospital before previously planned.

Figure 6.1 shows the proportion of participants in Groups 1, 2 and 3 that attended different total number of sessions, between a minimum of one session up to a maximum of all seven sessions. A distinction is apparent between those participants who attended three or less sessions and then stopped attending the group, and those who completed at least five sessions and could be considered to have successfully completed the treatment.

Figure 6.1: Percentage of participants attending between one and seven sessions for Group 1 (N=8). Group 2 (N=10). Group 3 (N=9) and the combined Total sample (N=27).



The average total number of sessions attended was 5.41, representing an average attendance rate of 77%. Eighty five percent of participants (N=23) attended at least five sessions and were considered to have successfully completed the treatment. Table 6.1 shows the corresponding figures for Groups 1, 2 and 3.

Table 6.1: Mean attendance rates and percentages of sample completing at least five sessions for each of the three groups and for the combined Total sample.

	Mean No. of sessions attended and % out of 7	**Standard Deviation**	**% of participants attending at least 5 sessions**
Group 1 (N=8)	5.38 (77%)	1.92	88% (N=7)
Group 2 (N=10)	5.80 (83%)	1.23	90% (N=8)
Group 3 (N=9)	5.00 (71%)	2.17	78% (N=7)
Total (N=27)	5.41 (77%)	1.76	85% (N=23)

Of the 23 participants who completed the treatment, one did not consent to participate in the research and three did not meet the research criteria because of having non-traumatic injuries. This left N=19 intervention group participants (N=6 from Group 1, N=9 from Group 2 and N=4 from Group 3) for the data analysis.

6.3 Demographic data

Demographic information for the research participants in each CET group is shown in Table 6.2. Some differences in the demographic data of the three groups are evident, such as the older mean age and absence of women in Group 3. Participants of the three CET groups were nonetheless combined for data analysis to obtain a sufficiently large sample size.

Demographic data for the combined intervention group (N=19) are presented in Table 6.2. The mean age at injury was 35.8 years, and ranged from 20.4 to 64.7 years. Seventy-four percent of participants were men. Before the injury, 58% of participants were either married or in a long term relationship, and 95% were employed or full time students. Forty-seven percent of participants were tetraplegic, and 53% had complete injuries. Thirty-two percent of injuries had occurred in road traffic accidents, 26% in sports accidents, 26% in domestic or industrial falls, and 16% had other causes such as through complications during an operation. Demographic data for the control group (N=19) are also given in Table 6.2.

Table 6.2: Demographic data for participants in the three Coping Effectiveness Training groups, and for control group participants.

	Intervention				**Control**
	Group 1 **(N = 6)**	**Group 2** **(N = 9)**	**Group 3** **(N = 4)**	**Combined** **(N = 19)**	**(N = 19)**
Mean Age	35.5 (SD = 8.3)	32.9 (SD = 8.5)	42.8 (SD = 17.4)	35.8 (SD = 10.8)	31.1 (SD = 12.7)
Age range	24.7 - 49.0	20.4 - 43.8	25.3 - 64.7	20.4 - 64.7	17.7 - 65.0
Male	4 (67%)	6 (67%)	4 (100%)	14 (74%)	15 (79%)
Marital status:					
Single	1 (17%)	2 (22%)	3 (75%)	6 (32%)	6 (32%)
Married/partner	3 (50%)	7 (78%)	1 (25%)	11 (58%)	10 (53%)
Divorced	2 (33%)	0 (0%)	0 (0%)	2 (11%)	3 (16%)
Employment:					
Employed	5 (83%)	8 (89%)	3 (75%)	16 (84%)	17 (89%)
Unemployed	0 (0%)	0 (0%)	1 (25%)	1 (5%)	2 (11%)
Student	1 (17%)	1 (11%)	0 (0%)	2 (11%)	0 (0%)
Injury:					
Tetraplegic	3 (50%)	4 (44%)	2 (50%)	9 (47%)	10 (53%)
Complete	3 (50%)	4 (44%)	2 (50%)	10 (53%)	17 (89%)
Cause:					
R.T.A.	2 (33%)	2 (22%)	2 (50%)	6 (32%)	11 (58%)
Sports	2 (33%)	3 (33%)	0 (0%)	5 (26%)	3 (16%)
Fall	2 (33%)	2 (22%)	1 (25%)	5 (26%)	4 (21%)
Other	0 (0%)	2 (22%)	1 (25%)	3 (16%)	1 (5%)

Both the intervention and the control group demographic data is fairly representative of demographic data for the general SCI population (see Section 2.1), though there are somewhat less road traffic accident injuries and more sports injuries than expected in the intervention group.

6.4 Match between intervention and control groups

A good match between intervention and control groups was obtained for most of the demographic variables, as shown in Table 6.2. In particular, there was no significant difference between groups in the mean age at injury ($t = 1.22$, n.s., two-tailed), in the female to male ratio ($\chi^2 = 0.15$, df = 1, n.s.), or the ratio of paraplegic to tetraplegic injuries ($\chi^2 = 0.11$, df = 1, n.s.). However, there was a significantly larger proportion of complete injuries in the control group ($\chi^2 = 9.47$, df = 1, $p < 0.01$), with 89% of injuries being complete compared to 53% in the intervention group. (This did not however reflect any differences in levels of functional independence, see below).

The mean pre-intervention values for the remaining variables (time since injury, functional independence (FIM), social support (SSQN and SSQS), BDI, SAI and the fifteen subscales of the COPE) in the intervention and control groups are shown in Table 6.3.

The intervention and control groups had an average time since injury of 19.7 and 17.7 weeks respectively. The range was between 12 and 39 weeks, with 28 participants (74%) having been injured for 18 weeks or less. The average FIM scores were 81.3 and 80.5 respectively. Scores ranged between 39 and 118, indicating a wide variation in levels of dependence from almost total dependence in self-care, sphincter control, mobility and locomotion to almost total independence.

The mean BDI scores were 15.5 and 15.1 for intervention and control groups respectively. This places both groups in the mildly depressed range, but 9 (47%) participants scored above the clinical cut-off of 14 on the BDI in both the intervention and the control groups. Similarly, the mean SAI scores were 41.8 and 42.7 respectively. Both again fall within the mild anxiety range, but 9 (47%) and 8 (42%) participants scored above the clinical cut-off of 42 on the SAI in the intervention and the control groups respectively. A comparison to results obtained in a larger sample (Kennedy, 1995) (see section 2.2) indicates that both intervention and control groups were somewhat more depressed and anxious, and had a larger proportion of clinical cases, than expected from the general SCI population.

Table 6.3: Pre-intervention scores for intervention and control groups, and results of independent t-tests analysing the match between mean group scores.

	Intervention (N=19)	**Control** (N=19)	
	Mean (S.D.)	**Mean (S.D.)**	**t-test**
Time since injury (weeks)	19.7 (6.98)	17.7 (3.73)	t = 1.13, p = 0.27
FIM	81.3 (24.8)	80.5 (28.8)	t = 0.10, p = 0.92
SSQN	20.7 (11.8)	29.8 (16.8)	t = 1.85, p = 0.074
SSQS	5.63 (0.49)	5.40 (1.00)	t = 0.86, p = 0.40
BDI	15.5 (8.39)	15.1 (9.61)	t = 0.14, p = 0.87
SAI	41.8 (15.0)	42.7 (12.7)	t = 0.19, p = 0.85
COPE:			
Positive reinterpretation	11.2 (2.68)	10.8 (3.34)	t = 0.43, p = 0.67
Active coping	12.2 (2.39)	10.7 (2.31)	t = 1.93, p = 0.061
Planning	11.5 (3.08)	11.1 (2.28)	t = 0.42, p = 0.68
Emotional social support	11.4 (3.02)	10.8 (2.76)	t = 0.67, p = 0.51
Instrumental social support	11.3 (2.85)	10.9 (2.84)	t = 0.34, p = 0.73
Suppress competing activity	10.1 (2.55)	9.4 (2.32)	t = 0.80, p = 0.43
Religion	9.6 (4.34)	6.7 (3.49)	t = 2.22, p = 0.033, *
Acceptance	12.8 (3.24)	12.5 (3.17)	t = 0.35, p = 0.73
Mental disengagement	8.1 (2.51)	8.2 (2.02)	t = 0.21, p = 0.83
Venting emotions	8.3 (3.02)	8.5 (3.51)	t = 0.55, p = 0.59
Behavioural disengagement	5.3 (1.95)	6.1 (2.84)	t = 0.93, p = 0.36
Denial	5.9 (2.35)	6.2 (1.83)	t = 0.31, p = 0.76
Restraint coping	9.4 (3.11)	8.8 (3.29)	t = 0.56, p = 0.58
Alcohol/Drug use	4.8 (1.89)	6.2 (3.51)	t = 1.50, p = 0.15
Humour	7.4 (3.37)	10.3 (4.19)	t = 2.35, p = 0.025, *

FIM = Functional Independence Measure. SSQN = Number of social supports. SSQS = Quality of social supports. BDI = Beck Depression Inventory. SAI = State Anxiety Inventory. COPE = measure of coping strategies. S.D. = Standard Deviation.
Note: Significant results are marked * ($p < 0.05$) for clarity.

The results of independent t-tests analysing for pre-intervention differences between the intervention and control groups are shown in Table 6.3. No significant differences were found in the mean time since injury, level of functional independence, number or satisfaction with social supports, and levels of depression or anxiety. On the COPE, there were no significant pre-intervention differences between groups in all subscales except in the use religion ($t = 2.22$, $p < 0.05$, two-tailed), and humour ($t = 2.35$, $p < 0.05$, two-tailed) coping strategies, with the intervention group mean score being higher for religion and lower for humour than the corresponding control group mean score.

6.5 Depression and Anxiety

The mean BDI and SAI scores for the intervention and control groups are given in Table 6.4, and graphed in Figures 6.2 and 6.3. Summary results of the repeated measures ANOVAs for BDI and SAI scores are shown in Table 6.5.

6.5.1 Depression

Hypothesis 1: *There will be a significantly greater reduction in measures of depression in participants who attend the CET for SCI intervention than in matched controls receiving the standard rehabilitation treatment.*

There was an improvement of 5.5 points in the mean BDI score of the intervention group following the CET intervention, lowering the mean BDI score well into the non-depressed range. This improvement was maintained at the six week follow-up assessment. By contrast, the control group mean BDI score increased by 2.6 points during the first six week period, and then dropped by 2.0 points over the next six week period. A non-significant increase in the mean depression score at around 24 weeks after the injury is not unique to this sample, and was similarly identified by Kennedy (1995).

Table 6.4: Means and standard deviations (in brackets) of depression and anxiety scores.

	Depression		Anxiety	
	Intervention (N=19)	**Control (N=19)**	**Intervention (N=19)**	**Control (N=19)**
Pre-intervention Assessment	15.5 (8.38)	15.1 (9.61)	41.8 (15.0)	42.7 (12.7)
Post-intervention Assessment	10.0 (7.91)	17.7 (12.8)	37.2 (14.8)	45.5 (12.5)
Follow-up Assessment	9.3 (7.85)	15.7 (12.1)	35.2 (14.6)	42.5 (15.6)

Table 6.5: Results of the repeated measures ANOVA for depression and anxiety scores.

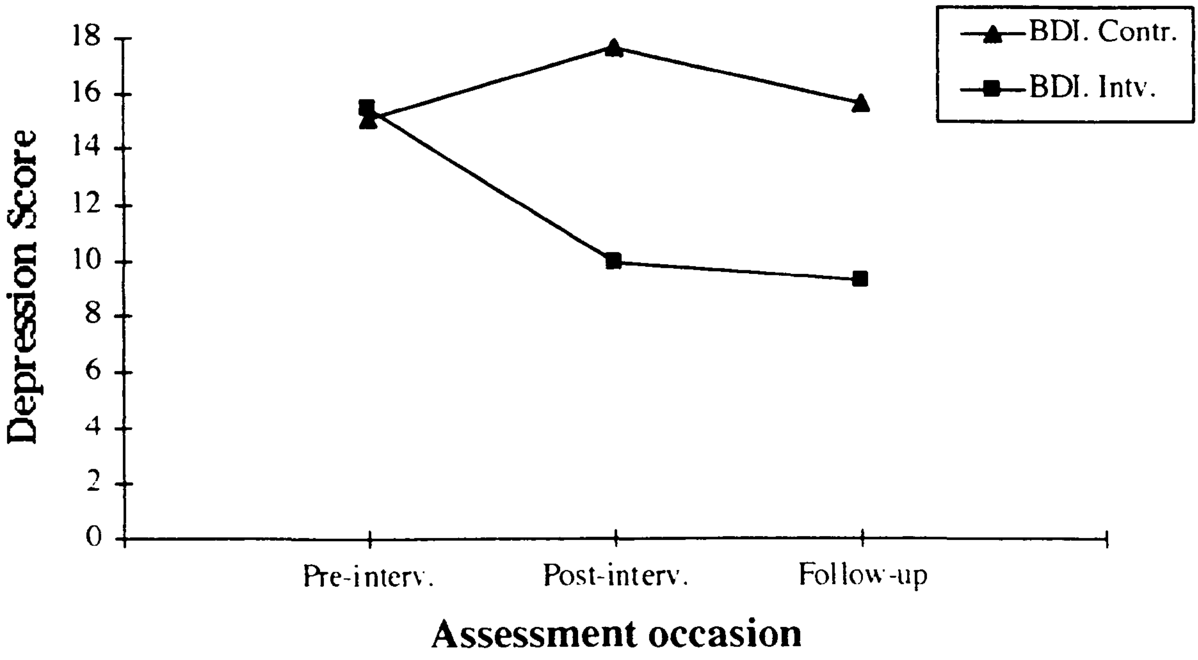
	Depression			Anxiety		
Source of variation	**df**	**F**	**Sig. of F**	**df**	**F**	**Sig. of F**
Group	1. 36	2.34	p = 0.13, ns	1,36	1.66	p = 0.21, ns
Time	2. 72	3.38	p = 0.039	2,72	2.65	p = 0.077, ns
Group X Time interaction	2.72	8.34	p = 0.001,	2,72	3.52	p = 0.035

Group = (Intervention, Control) Time = (Pre-intervention, Post-intervention, Follow-up)
ns = not significant.

There was no significant main effect of group (intervention vs. control) for the BDI scores, but there was a significant main effect of time (pre-intervention, post-intervention and follow-up assessments) for this measure (F = 3.38, df = 2,72, $p < 0.05$).

A significant interaction between group and time was found for the BDI scores (F = 8.34, df = 2,72, $p < 0.01$). Post-hoc Newman-Keuls tests showed the intervention group pre-intervention mean score to be significantly higher than the post-intervention ($p < 0.01$) and the follow-up ($p < 0.01$) mean scores. Thus participants who attended the CET groups showed a significantly greater reduction in depression than control group participants following the intervention, and this was maintained at follow-up. Hypothesis 1 can therefore be accepted, and the null hypothesis rejected.

Figure 6.2: Mean depression scores for intervention and control groups.



6.5.2 Anxiety

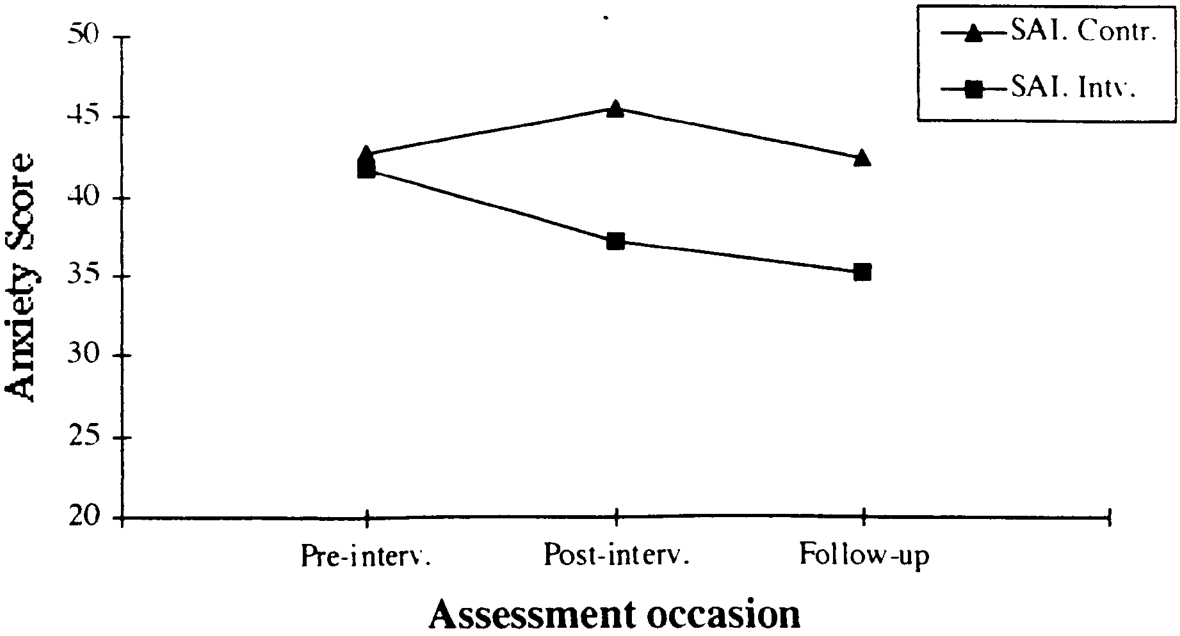
Hypothesis 2: *There will be a significantly greater reduction in measures of anxiety in participants who attend the CET for SCI intervention than in matched controls receiving the standard rehabilitation treatment.*

There was a 4.6 point improvement in the mean SAI score of the intervention group following the CET intervention, lowering the mean SAI score well into the non-anxious range. There was a further improvement in SAI scores of 2.0 points at the six week follow-up assessment. By contrast, the control group mean SAI score increased by 2.8 points during the first six week period, and then dropped by 3.0 points over the next six week period. Kennedy (1995) again found a similar non-significant increase in the mean anxiety score at 24 weeks after the injury.

No significant main effects of group or of time were found in the SAI scores.

A significant interaction effect between group and time was found for the SAI scores (F = 3.52, df = 2,72 $p < 0.05$). Post-hoc Newman-Keuls tests showed the intervention group pre-intervention mean score to be significantly higher than the post-intervention ($p < 0.05$) and the follow-up ($p < 0.05$) mean scores. Thus participants who attended the CET groups showed a significantly greater reduction in anxiety than control group participants following the intervention, and this was maintained at follow-up. Hypothesis 2 can therefore be accepted, and the null hypothesis rejected.

Figure 6.2: Mean anxiety scores for intervention and control groups.



6.6 Self concept

Hypothesis 3: *There will be a significant change in the self-concept of participants who attend the CET for SCI intervention.*

The intervention group mean AB-negative score (the difference between scores for 'as I am now' and 'as I would be without the injury') for each of the SPS subscales and the Total AB-negative score at each of the three assessments are shown in Table 6.6. Results of the Friedman tests for the SPS AB-negative scores are also shown in Table 6.6. Data was collected only for N=18 intervention group participants, with one person choosing not to complete this part of the assessment.

The mean Total AB-negative score increased by 2.0 points at the post-intervention assessment, and then dropped by 0.22 points at the follow-up assessment. This indicates that participants' perceptions of 'as I am now' had come closer to their perceptions of 'as I would be without the injury' following the CET intervention.

There was a main effect of time approaching significance in the SPS Total AB-negative scores ($M = 5.33$, $df = 2$, $p = 0.070$). There is therefore evidence of a trend towards change in the self-concept of intervention group participants over the observation period.

A strong correlation was also found between Total AB-negative scores and BDI scores at each assessment time (pre-intervention: $r = 0.490$, $p < 0.05$; post-intervention: $r = 0.854$, $p < 0.001$; follow-up: $r = 0.736$, $p < 0.001$, all one-tailed).

While there were no significant main effects of time in the AB-negative scores of any of the individual SPS subscales, the change in the Not Lonely/Lonely mean subscale score contributed substantially more than the other subscales to the improvement in Total AB-negative mean score.

Table 6.6: Mean and standard deviation (in brackets) for the Self Perception Scale subscale and Total AB-negative scores, and results of the Friedman tests.

	Intervention Mean AB-negative score (S.D.)			**Friedman Test (df = 2)**	
Self Perception Scale	**Pre-interv.**	**Post-interv.**	**Follow-up**	**M**	**Sig. of M**
Energetic/ Lethargic	-1.33 (1.24)	-1.17 (1.29)	-0.94 (1.35)	1.00	p = 0.61
Confident/ Not Confident	-0.67 (1.08)	-0.50 (1.10)	-0.33 (0.84)	0.53	p = 0.77
Interested/ Bored	-1.11 (1.60)	-1.17 (1.29)	-1.00 (1.75)	0.69	p = 0.71
Satisfied/ Dissatisfied	-1.17 (1.47)	-1.28 (1.53)	-1.50 (1.50)	0.19	p = 0.91
Active/ Inactive	-1.28 (1.60)	-0.72 (1.13)	-1.06 (1.51)	1.44	p = 0.49
Optimistic/ Pessimistic	-0.22 (0.88)	-0.17 (0.86)	-0.11 (0.58)	0.11	p = 0.95
Sociable/ Withdrawn	-1.00 (1.24)	-0.67 (1.19)	-0.67 (0.97)	0.78	p = 0.68
Not Lonely/ Lonely	-1.67 (1.57)	-0.83 (1.25)	-0.72 (1.23)	3.03	p = 0.22
Understanding/ Intolerant	-0.17 (1.25)	-0.06 (0.42)	0.22 (0.88)	0.44	p = 0.80
Decisive/ indecisive	-0.72 (1.07)	-0.61 (1.33)	-0.72 (1.02)	1.00	p = 0.61
Improving/ Deteriorating	0.44 (0.98)	0.28 (0.75)	0.28 (0.83)	4.36	p = 0.11
TOTAL	-8.89 (7.44)	-6.89 (7.48)	-7.11 (7.95)	5.33	p = 0.070 §

Note: 'AB-negative score' is the difference between perceptions of 'As I am now' and 'As I would be without the injury'. Negative scores indicate the second is rated more positively.
§ = approaching significance.

6.7 Coping strategies

The mean score for each of the COPE subscales for the intervention and control groups are shown in Table 6.7. Summary results of the repeated measures ANOVAs for the COPE subscale scores are shown in Table 6.8.

Hypothesis 4: *There will be a significantly greater increase in the use of adaptive coping strategies in participants who attend the CET for SCI intervention than in matched controls receiving the standard rehabilitation treatment.*

Table 6.7: Mean and standard deviation (in brackets) of the COPE subscale scores at each of the three assessment times.

	Intervention			Control		
COPE:	Pre-interv.	Post-interv.	Follow-up	Pre-interv.	Post-interv.	Follow-up
Positive reinterpretation	11.2 (2.68)	11.2 (2.99)	11.3 (3.01)	10.8 (3.34)	9.7 (3.46)	9.5 (3.82)
Active coping	12.2 (2.39)	12.4 (2.48)	12.1 (2.46)	10.7 (2.31)	9.7 (2.33)	10.3 (3.29)
Planning	11.5 (3.08)	12.3 (2.91)	12.3 (2.45)	11.1 (2.28)	10.3 (1.95)	10.4 (3.27)
Emotional social support	11.4 (3.02)	11.2 (3.45)	11.0 (3.97)	10.8 (2.76)	10.6 (3.27)	9.8 (3.50)
Instrumental social support	11.3 (2.84)	11.8 (2.75)	11.1 (3.36)	10.9 (2.84)	10.6 (2.65)	10.0 (3.59)
Suppress competing activity	10.1 (2.55)	10.0 (2.49)	9.2 (3.24)	9.4 (2.32)	8.6 (2.50)	8.2 (2.71)
Religion	9.6 (4.34)	9.0 (4.58)	9.6 (4.81)	6.7 (3.49)	6.4 (3.20)	6.4 (3.18)
Acceptance	12.8 (3.24)	13.4 (2.43)	13.7 (2.28)	12.5 (3.17)	12.1 (3.42)	11.4 (3.60)
Mental disengagement	8.1 (2.51)	8.1 (2.58)	7.8 (2.53)	8.2 (2.02)	8.1 (2.33)	7.7 (2.08)
Venting emotions	8.3 (3.02)	8.5 (2.93)	8.1 (2.88)	8.9 (3.51)	8.8 (3.59)	8.5 (3.34)
Behavioural disengagement	5.3 (1.96)	5.2 (1.66)	4.8 (1.03)	6.1 (2.84)	6.1 (3.67)	5.4 (2.01)
Denial	5.9 (2.34)	5.3 (1.39)	5.0 (1.15)	6.2 (1.83)	6.3 (2.33)	6.2 (2.48)
Restraint coping	9.4 (3.11)	8.8 (2.73)	9.1 (3.19)	8.8 (3.29)	9.6 (3.06)	8.5 (2.27)
Alcohol/Drug use	4.8 (1.89)	4.5 (1.26)	5.0 (2.03)	6.2 (3.51)	6.2 (3.63)	6.3 (3.86)
Humour	7.4 (3.37)	9.3 (4.03)	8.3 (3.56)	10.3 (4.19)	8.4 (3.61)	10.5 (4.25)

Table 6.8: Results of repeated measures ANOVA for the COPE subscale scores.

Source of ⇒ Variation	Group			Time			Group X Time Interaction		
COPE:	**df**	**F**	**Sig. of F**	**df**	**F**	**Sig. of F**	**df**	**F**	**Sig of F**
Positive reinterpretation	1.36	1.58.	p = 0.22	2.72	2.03	p = 0.14	2,72	2.41	p = 0.097
Active coping	1.36	8.27	p = 0.007. **	2.72	0.68	p = 0.51	2,72	1.54	p = 0.22
Planning	1.36	3.76	p = 0.06	2.72	0.00	p = 1.00	2,72	2.42	p = 0.097
Emotional social support	1.36	0.63	p = 0.43	2.72	1.62	p = 0.20	2,72	0.34	p = 0.71
Instrumental social support	1.36	0.92	p = 0.34.	2.72	2.33	p = 0.10	2,72	0.93	p = 0.40
Suppress competing activity	1.36	2.00	p = 0.17	2.72	3.37	p = 0.04. *	2,72	0.41	p = 0.67
Religion	1.36	5.31	p = 0.027. *	2.72	1.14	p = 0.33	2,72	0.57	p = 0.57
Acceptance	1.36	2.25	p = 0.14	2.72	0.06	p = 0.94	2,72	3.21	p = 0.046. *
Mental disengagement	1.36	0.00	p = 0.96	2.72	0.62	p = 0.54	2,72	0.04	p = 0.96
Venting emotions	1.36	0.24	p = 0.63	2.72	0.65	p = 0.52	2,72	0.05	p = 0.96
Behavioural disengagement	1.36	1.24	p = 0.27	2.72	1.98	p = 0.15	2,72	0.11	p = 0.89
Denial	1.36	1.98	p = 0.17	2.72	1.41	p = 0.25	2,72	1.62	p = 0.21
Restraint coping	1.36	0.02	p = 0.90	2.72	0.73	p = 0.49	2,72	2.12	p = 0.13
Alcohol/Drug use	-	-	-	-	-	-	-	-	-
Humour	1.36	3.75	p = 0.061	2.72	1.25	p = 0.29	2.72	1.04	p = 0.36

Note: Significant results are marked * ($p < 0.05$) or ** ($p < 0.01$) for clarity.

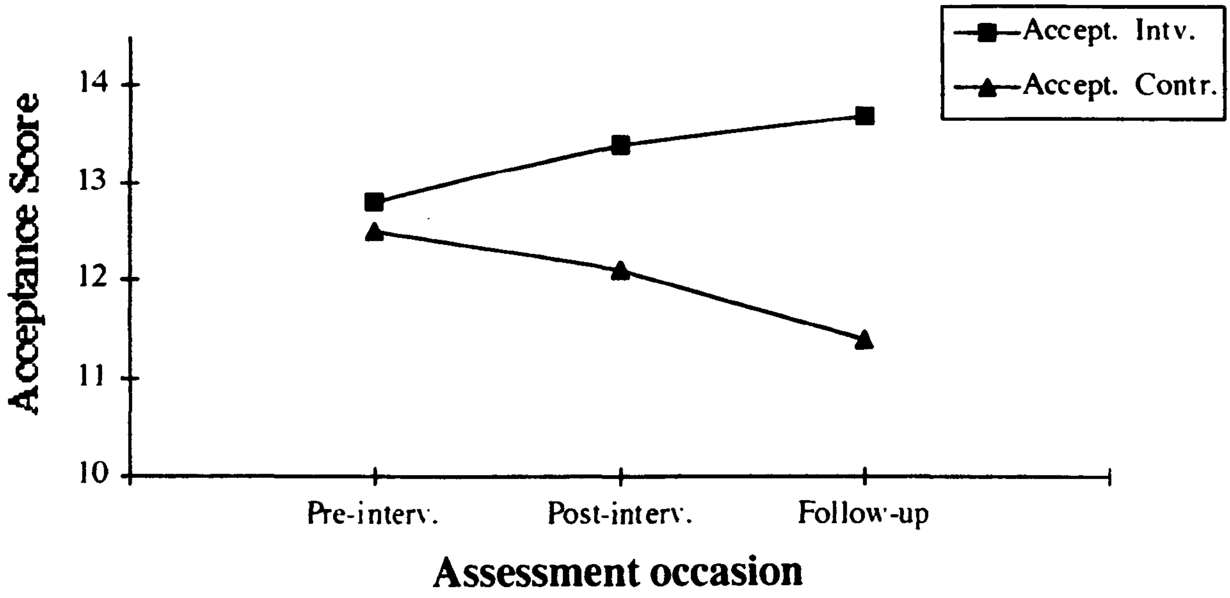
For the adaptive coping strategies ('Active coping', 'Positive reinterpretation and growth' and 'Acceptance'), a significant main effect of group was found only for the 'Active coping' subscale scores ($F = 8.27$, $df = 1,36$, $p < 0.01$), and no significant main effects of time were found.

A significant group by time interaction was found only for the 'Acceptance' subscale score ($F = 3.21$, $df = 2,72$, $p < 0.05$). The 'Acceptance' intervention group mean score increased between 12.8 and 13.7 over the observation period, whilst over the same period the control group mean score decreased from 12.5 to 11.4. The intervention group 'Acceptance' mean scores were markedly higher than those obtained for all other COPE subscales and a 'ceiling effect' might have been present. Post-hoc Newman-Keuls tests showed the decrease between the control group pre-intervention and follow-up mean scores to approach significance at the $p < 0.05$ level. Between-subjects post-hoc Newman-Keuls tests (using the Games-Howell procedure as recommended by Howell (1992)) showed a significant difference ($p < 0.05$) between intervention and control group mean scores at the follow-up assessment.

There is therefore no evidence of a greater increase in the use of any of the adaptive coping strategies in intervention group participants compared to control group participants, and the null hypothesis cannot be rejected.

However with regards the 'Acceptance' adaptive coping strategy, these results do suggest that the intervention may have had a significant effect. Thus, a trend was present towards a decrease in the use of the acceptance coping strategy in the control group, which was absent in the intervention group. The slight increase in the intervention group mean scores was not significant but a 'ceiling effect' may have been present. These changes lead to a significant difference between intervention and control group mean scores at the follow-up assessment. Thus it seems that the CET intervention helped the intervention group maintain a high mean score for the 'Acceptance' coping strategy relative to a decrease in control group over the observation period (see Figure 6.4).

Figure 6.4: Mean 'Acceptance' scores for intervention and control groups.



Hypothesis 5: *There will be a significantly greater decrease in the use of maladaptive coping strategies in participants who attend the CET for SCI intervention than in matched controls receiving the standard rehabilitation treatment.*

No significant main effects of group or time, or a group by time interaction, were found in the COPE subscale scores of any of the maladaptive coping strategies analysed ('Behavioural disengagement', 'Mental disengagement', 'Denial', and 'Focusing on and venting emotions'). Although the 'Alcohol/Drug use' subscale data was not analysed statistically, changes in the intervention group mean scores between pre-intervention, post-intervention and follow-up assessments were very small (-0.3 and +0.5 points respectively) compared to standard deviations which, together with the control group mean scores being virtually constant over the three assessments, make it very unlikely that a significant interaction effect was present. There is therefore no evidence of a greater decrease in the use of any of the maladaptive coping strategies in intervention group participants compared to control group participants, and the null hypothesis cannot be rejected.

Of the remaining COPE subscales, a significant main effect of group was found only for the 'Religion' subscale scores ($F = 5.31$, $df = 1.36$, $p < 0.05$), and a significant main effect of time was found only for the 'Suppressing competing activities' subscale score ($F = 5.31$, $df = 1.36$, $p < 0.05$). No other significant group by time interactions were found.

6.8 Participant evaluation of the Coping Effectiveness Training groups

6.8.1 Overall evaluation

N=18 (95%) of the 19 participants who completed the treatment said they had found the groups at least 'fairly interesting', and N=15 (79%) said they had been at least 'fairly helpful' in making the consequences of the injury more manageable. N=3 participants said they had found the groups interesting but not helpful because they were not at present stressed, and one person said they were neither interesting nor helpful but he had continued to attend because it was part of the programme on offer.

6.8.2 Interactions between participants

The most frequently received comment (from N=18 participants) was that the interaction with other group members had been the most helpful aspect of the CET group. There were however a number of different ways in which this was experienced as helpful:

a) Communication with other patients (N=12).

Some participants suggested that, given their busy schedule and the primarily physical focus of the rehabilitation programme, it was often difficult to find appropriate opportunities to share difficulties or experiences with other patients. Ten participants suggested that the groups had been a safe place in which to do that, and this in itself had been very helpful. However, two participants said they had been afraid that listening to others who were more depressed than they were would be unhelpful.

b) Normalisation (N=6).

Some participants commented that realising that other patients were experiencing similar thoughts, feelings and difficulties associated with the SCI had been invaluable. Two participants commented on how this had reduced their feelings of isolation and despair, and had helped them feel less depressed. Two participants described how seeing that another patient with an injury similar to their own was coping more effectively than them had given them courage and hope.

c) Learning from others (N=10).

Hearing how other patients had tried to cope with common problem situations had been useful in helping some participants reflect upon their own coping approaches. Some participants said this had provided them with new solutions which they had not previously considered, others said it had made them consider the variety of reactions to and ways of coping with SCI and this had helped them approach their difficulties more flexibly. Interestingly, three participants suggested the reverse, namely that becoming aware of the ineffective coping approaches of other participants, and the resulting depression and anxiety, had alerted them to this risk and helped them strengthen their resolve to avoid maladaptive coping strategies. Two participants said they had valued the opportunity to be of assistance to other patients who were not coping as well as they were by offering advice.

d) Improved social support (N=5).

A number of participants commented that it was often difficult to establish relationships with other patients in the hospital, and the CET group had been helpful in facilitating this. A few participants regularly remained in the room after the end of each session and continued discussing the issues raised, and two participants commented that these conversations had almost been as valuable as the actual group sessions. Some of these relationships survived the end of the group and continued to offer improved social support.

Eleven participants suggested that the CET group could be improved through having more group discussions to offer further opportunities for participants to share experiences.

6.8.3 Realistic social problem scenarios

Eight participants said that examining the realistic problem scenarios (see Appendix C for content) had been a challenging but very helpful exercise. Four participants described how the scenarios had helped them consider some of the possible situations they might face after being discharged from hospital, and this had forced them to engage in problem solving and planning activities. Four participants said they had appreciated the discussions on assertiveness and their rights in relation to these social problem situations. Five participants suggested the CET group could be improved by discussing more of these scenarios.

6.8.4 Coping strategies

Some participants commented on specific aspects of the didactic components of the CET group. Three participants said they had appreciated learning the skill of breaking down global stressors into more manageable and specific stressful situations. Four participants said the cognitive model of depression, and the associated activity scheduling and negative thought challenging skills, had been useful.

However, the most frequent comment (N=9) was that most of what had been taught in the group was "common sense" and already known to them, and now simply had to be applied to this new more challenging situation. In this way the lectures seemed to have served the important function of reassuring some participants that they did already have the skills to cope with SCI. Thus five participants said they had gained confidence and an increased sense of being in control from realising that they were already employing many of the adaptive coping skills discussed in the group.

6.9 Differences in outcome between participants scoring above and below clinical cut-off scores

Clinical significance was not analysed in this study, though visual inspection of the data suggested that few of the changes in depression and anxiety obtained would have been clinically significant using stringent psychotherapy research criteria (e.g. Jacobson & Truax, 1991). Of the nine intervention group participants who initially scored above the clinical cut-off score of 14 on the BDI three scored below this at the post-intervention assessment. There were no changes in the number of intervention group participants scoring above the clinical cut-off score of 42 on the SAI, and similarly no changes for either depression or anxiety in the control group.

However, a first step towards assessing which participants benefited most from the CBT groups was to compare the improvement of participants who had initially scored above the clinical cut-off scores on either the BDI or the SAI (N=9), with those participants who had scored below the clinical cut-off on both (N=10). Control group participants could not be included as they had not been matched appropriately for this analysis.

Mean BDI and SAI scores for participants above and below clinical cut-offs are shown in Table 6.9. Summary results of the repeated measures ANOVAs for BDI and SAI scores are shown in Table 6.10.

There was an improvement of 6.9 points in the mean BDI score, and 5.9 points in the mean SAI score between pre-intervention and post-intervention assessments for participants above clinical cut-off scores. Both BDI and SAI mean scores dropped close to the clinical cut-off scores at the post-intervention assessment, with the SAI mean score dropping below the clinical cut-off at the follow-up assessment. The mean improvement for those participants below clinical cut-off scores was 4.2 and 3.6 points respectively on the BDI and SAI, and a floor effect may have been present in both measures.

Table 6.9: Means and standard deviations (in brackets) of BDI and SAI scores for participants scoring above and below clinical cut-off scores.

	Depression		**Anxiety**	
	Above clinical cut-offs (N=9)	**Below clinical cut-offs (N=10)**	**Above clinical cut-offs (N=9)**	**Below clinical cut-offs (N=10)**
Pre-interv. Assessment	23.6 (3.05)	8.2 (2.90)	55.9 (7.06)	29.2 (5.47)
Post-interv. Assessment	16.7 (5.70)	4.0 (3.46)	50.0 (10.1)	25.6 (5.76)
Follow-up Assessment	14.7 (7.78)	4.4 (3.75)	46.3 (13.3)	25.1 (5.65)

Table 6.10: Results of the repeated measures ANOVA of BDI and SAI scores for participants scoring above and below clinical cut-off scores.

	Depression			**Anxiety**		
Source of variation	**df**	**F**	**Sig. of F**	**df**	**F**	**Sig. of F**
Group	1.17	51.39	p = 0.000	1.17	73.07	p = 0.000
Time	2.34	21.22	p = 0.000	2.34	5.09	p = 0.012
Group X Time interaction	2.34	2.88	p = 0.070 §	2.34	0.78	p = 0.47 ns

Group = (Above clinical cut-offs vs. below clinical cut-offs) Time = (Pre-intervention, Post-intervention, Follow-up) § = Approaching significance, ns = not significant.

As expected, repeated measures ANOVA indicated a significant main effect of group in the BDI (F = 51.39, df = 1.17, p < 0.001) and SAI (F = 73.07, df = 1.17, p < 0.001) scores. A significant main effect of time was also found in both BDI (F = 21.22, df = 2.34,

$p < 0.001$) and SAI ($F = 5.09$, df = 2,34, $p < 0.05$) scores. A group by time interaction approaching significance was also present for BDI scores ($F = 2.88$, df = 2,34, $p = 0.070$), with those participants with initial scores above clinical cut-offs showing a larger improvement over time than those participants with initial scores below clinical cut-offs. No similar interaction effect was found in the SAI scores.

Although this analysis is poorly controlled because the two groups are poorly matched, and no control group participants were used, it suggests that participants above clinical cut-offs show a greater improvement in depression than those with lower scores, bringing the mean scores very close to the clinical cut-off. Nonetheless, the 4.2 point improvement in the mean BDI score of participants below clinical cut-off scores is substantial and suggests that they also gained some benefit from attending the CET group.

Section 7

Discussion

7 Discussion

7.1 Overview

This section begins by summarising the main results of this study, and detailing the principal methodological problems of the evaluation conducted. An outline of the wider implications of the treatment effects is presented, and an attempt is then made to understand some of the processes which might have facilitated the therapeutic benefits gained from attending the CET groups. Clinical and research implications are then discussed in the context of future plans to continue running the CET groups at the NSIC.

7.2 Summary of main results

7.2.1 Implementation

The first aim of this project was to develop the CET intervention, and this has been described in section 3. The second aim of this project was to determine whether it would be possible to implement this intervention as a standard component of the rehabilitation programme at the NSIC. Proactive strategies were therefore employed to increase the involvement of other rehabilitation staff in the project and enhance patient participation in the groups. The CET groups were successfully incorporated into the rehabilitation programme. The procedure established for liaison and communication with other professionals was very effective, leading to a high degree of interest and collaboration from other rehabilitation staff and very few schedule conflicts throughout the three groups.

A high level of patient participation was also achieved, providing further evidence of the success of implementing the intervention. Thus 75% of patients who were invited attended the CET group, and the average attendance rate was 5.41 of seven sessions (77%), with 85% of participants attending five or more sessions and successfully completing the treatment. This compares very well with reports in the literature of previous attempts at running group-based interventions for people with SCI. For example, Roessler et al. (1976) report 60% - 80% attrition rates, Cimperman & Dunn (1974) report an average attendance rate of about 25%, and even Craig et al. (1997) report only a 70% average attendance rate in their carefully conducted cognitive-behavioural groups for SCI patients.

7.2.2 Evaluation

The third aim of this project was to empirically evaluate the efficacy of the CET intervention for improving psychological adjustment, increasing adaptive coping and reducing maladaptive coping in people with SCI. Demographic data collected indicated that both intervention (N=19) and control (N=19) groups were representative of the general SCI population. Intervention and control groups were well matched in the range of demographic variables obtained, including age at injury, gender and level of injury. Although there were significantly more complete injuries in the control group, there were no differences in levels of functional independence between the groups.

Most (74%) participants had been injured for between 12 and 18 weeks at the first assessment, and there was a wide range in the level of dependence, between almost fully dependent to high levels of independence. The mean pre-intervention scores placed both groups within the mildly depressed and mildly anxious ranges, but nearly half of participants in each group scored above the clinical cut-off scores for depression and anxiety, which was higher than expected for the general SCI population (Kennedy, 1995). Intervention and control groups were well matched in pre-intervention measures of time since injury, functional independence, number and satisfaction with social supports, depression, anxiety, and the use of all the coping strategies measured, except for 'religion' and 'humour' which the intervention group used more.

There was a marked drop in the intervention group mean BDI score following the CET intervention, which lowered it well into the non-depressed range. A significantly greater reduction was found in the mean BDI score of the intervention group compared to the control group. The improvement in the BDI score of the intervention group took place between pre-intervention and post-intervention assessments, and was maintained at the follow-up assessment. Similarly, there was a considerable drop in the intervention group mean SAI score following the CET intervention, again lowering it into the non-anxious range. A significantly greater reduction was also found in the mean SAI score of the intervention group compared to the control group. Most of the improvement in the SAI score of the intervention group took place between pre-intervention and post-intervention assessments, and this was maintained at the follow-up assessment. These results are evidence that the CET intervention was effective at improving psychological adjustment to SCI.

There was an increase approaching significance in the SPS Total AB-negative score of the intervention group, with the largest contribution to this coming from improvements in the 'Not Lonely/Lonely' subscale. Thus participants' perception of 'as I am now' had come closer to their perception of 'as I would be without the injury', and this suggests a trend towards an improvement in self-concept over the observation period. Total AB-negative scores were strongly correlated with BDI scores at each assessment time.

The coping strategies employed by the intervention group participants did not change significantly compared to control group participants as a result of the CET intervention, and there was no evidence of a greater increase in the use of adaptive coping strategies, or greater reduction in the use of any of the maladaptive coping strategies, in the intervention group compared to the control group. However, the intervention group did maintain a high 'Acceptance' COPE subscale mean score throughout the observation period relative to an almost significant decrease in that for the control group, suggesting that the CET intervention may have had a beneficial effect with regards this adaptive coping strategy.

The participant evaluation of the CET group was very positive, with most (79%) participants saying they had found the CET group helpful in making the consequences of the injury more manageable. The interaction with other participants was perceived as the most valuable aspect of the groups, and the qualitative data obtained was categorised into the themes of i) communicating with other patients, ii) normalisation, iii) learning from others, and iv) improved social support. Thus participants reported that the opportunity to share experiences with other patients had been an important normalising experience which had lead to reduced feelings of despair, and had given them hope and courage to cope with the consequences of the SCI. Participants also described how they had discovered what were both helpful and unhelpful ways of coping with the injury from listening to and observing other participants in the group, as well as discussing the realistic social problem scenarios. Although some of the specific skills taught were appreciated, most participants remarked that much of the didactic material was "common sense" but said that this had nonetheless been valuable in reinforcing their confidence of being able to cope with the consequences of the injury and enhancing their perceived sense of being in control of their lives.

The post-hoc comparison between participants who had initially scored above either of the clinical cut-off scores for depression and anxiety and participants who had scored below the clinical cut-off on both measures indicated a trend towards participants with high initial scores showing a greater improvement in depression than those with lower scores. Nonetheless, there was also a substantial improvement in the mean BDI score of participants below clinical cut-off scores, suggesting that they also gained some benefit from attending the CET group.

7.3 Methodological concerns

7.3.1 Sample

Intervention group participants were recruited on the basis of their wish to participate in a CET group and in the associated research, and this selection procedure has an inherent risk of bias (Kalton, 1983). For instance, these patients may have been more eager to find ways of improving their adjustment to the injury, and the gains achieved relative to control group participants may have been associated with this and be less generalisable than expected. However, all patients who met the research criteria and were available at the NSIC over the period of research were invited to attend a group which, together with the high 75% uptake and the detailed matching of intervention and control groups, reduce the likelihood of any such effects. A fully randomised controlled trial would of course be an improvement on both the selection and matching procedures used in this study.

As described in section 5.6, individual treatment from a clinical psychologist was available to all patients as part of the standard rehabilitation programme offered, with the criteria for offering clinical psychology input and the clinical psychology resources available being the same for intervention and control groups. Unfortunately information regarding such input was not available for all participants. Although on average the same number of intervention and control group participants would have received similar psychological input, this remained a significant possible source of uncontrolled difference between the groups which could have enhanced the treatment effects found.

7.3.2 Assessment

The researcher completed all the assessments and run two of the three CET groups. This may have introduced a bias in the responses given by participants to the questionnaires and to the verbal evaluation of the groups. In particular it may have been difficult for participants to be critical of the CET groups in their feedback, though the richness of the positive remarks obtained is unlikely to have been entirely the product of such a bias. A further effect of this could have been that some patients who did not want to participate in the research may have decided to forsake the opportunity to participate in the CET groups, although it was always made clear that people could attend the groups without participating in the research. On the other hand, the process of being asked about possible difficult experiences during the initial assessment seemed to have the additional function of strengthening the relationship with the researcher, and may have helped engage some participants in the CET intervention.

The as yet unknown reliability and validity of the SPS are obvious limitations of this measure and of the value of results obtained using it. Similarly, the lack of SPS scores for the control group makes it impossible to determine whether the changes found in self-perception were treatment effects. Although these limitations were recognised from the beginning, this measure was nonetheless included as a further means of exploring the effects of the CET intervention.

7.3.3 Treatment

All the CET groups were conducted closely following the protocol described in the treatment manual (Appendix C), and although the researcher did participate as an observer for the whole of Group 1, and the Consultant Clinical Psychologist observed one of the sessions of Group 3, adherence to treatment was not explicitly assessed in this project. The different conductor for Group 1 and Groups 2 and 3 may have had an effect on the treatment offered to different participants. No treatment effect differences were however found in the outcome data obtained for participants in Group 1 and Groups 2 and 3 (Appendix E), suggesting that the identity of the conductor was not a dominant factor in determining outcome.

7.3.4 Process

A key question which must be asked is whether it is ethically justifiable to inquire into patients' distress only a few months after a major traumatic experience for the purpose of clinical research. Such an inquiry may in itself bring about considerable, and possibly unwanted, change in the person's perception of themselves and the injury, for example by disrupting a degree of protective denial which might be present. This was carefully considered prior to submission to the ethics committee and a number of safeguards were employed. Thus, patients were offered the option of attending the CET groups but not participating in the research, assessment interviews were terminated at any signs of distress, and other professionals involved in the person's care were contacted if such situations arose. In the event, one person did start to become distressed during the initial assessment, which was immediately terminated. This person then chose to attend the CET group without further participating in the research, and later informally reported finding it very useful.

A further consideration was the potential impact on the researcher of being exposed to participants' traumatic experiences and distress. My views about the consequences of spinal cord injury have certainly had to be radically reconsidered, and the project has offered me an inspiring and often humbling experience of people's capacity to live through severe trauma. Supervision and support was available at all times during this project.

7.4 Therapeutic processes within the Coping Effectiveness Training intervention

Participation in the CET group brought about important reductions in levels of depression and, to a lesser extent, of anxiety, although probably few individuals would have shown clinically significant gains using stringent psychotherapy research criteria. These changes do represent significant improvements in the psychological adjustment of participants to the SCI. The ameliorated level of distress during hospital rehabilitation in itself represents a very valuable gain for these people. It is also important to recognise the possible indirect effect of such an improvement on other aspects of the rehabilitation process, with a number of studies showing an association between levels of psychological morbidity during hospitalisation and the quality of the rehabilitation achieved (Malec & Neimeyer, 1983; Lawson, 1978). A number of participants made comments suggesting this was happening, such as one person saying he had began to engage in his physiotherapy with renewed vigour to accomplish the improvements he had seen another participant with a similar injury achieve.

The CET intervention did not significantly change the adaptive or maladaptive coping strategies which participants reported using, as measured by the COPE. This is surprising given the strong association established by previous research between the coping strategies employed and psychological adjustment to SCI (Reidy et al., 1991; Kennedy, 1995). The results of this study therefore seem to indicate that, even when psychological adjustment to the injury is improved, it is difficult to change the coping strategies which people report using. A number of possible explanations can be put forward for this finding:

1. There is an ongoing debate in the literature on whether dispositional ('trait') or situational ('state') coping is being measured by different instruments (see Zeidner & Endler, 1996). It is possible that the minimal changes found in the COPE scores were a result of the insensitivity of this measure to certain aspects of coping. Thus it may be that the CET groups did have an effect on situational coping, associated with the improvements in depression and anxiety which were found, but this was not registered on the COPE because it has a stronger emphasis than expected on underlying dispositional coping (Strack & Feifel, 1996) which is more likely to have remained unchanged by the intervention.

2. Given that participants had remained within the relatively stable and protected hospital environment throughout the period of observation it may have been unrealistic to expect immediate changes in the coping strategies which people reported using, and treatment effects could be delayed. Conversations with participants suggested that the impact of the CET group continued to develop even after the follow-up assessment, either through further discussions with other participants with whom relationships had been established or when trying out different coping approaches in new situations. It may be that the treatment effects on the coping strategies employed would only become apparent after discharge from hospital when using new strategies was more relevant and necessary. The converse is however also possible, namely that the improvements in depression and anxiety were temporary and possibly associated with the increased social contact with other patients. Thus, if the coping strategies employed had indeed not changed as a result of the intervention, the treatment effect on the psychological adjustment to the SCI could be temporary and possibly disappear after discharge from hospital. Clearly the short six week follow-up used is a major limitation of this study and only a longer follow-up, possibly up to one year after discharge, could resolve these questions.

3. Some of the other findings of this study suggest that a more complex relationship than expected exists between coping and psychological adjustment to SCI, possibly mediated through the person's beliefs about disability and their ability to cope with the consequences of the injury (Hansen & Tate, 1984). It may be that some of these key perceptions were altered through attending the CET groups, leading to improvements in participant's psychological adjustment to SCI, whilst leaving the possibly more dispositional coping strategies which participants reported using unchanged.

Thus, the change in the Total AB-negative score of the SPS indicated a trend towards a reduction over time in participants' perceived change in themselves resulting from the injury ('as I am now' compared to 'as I would be without the injury'). Although the lack of comparison with controls precludes conclusions regarding treatment effects, the short period of time over which these changes occurred and the strong correlation with the BDI scores, which did improve as a result of the intervention, may at least be partly suggestive of such a conclusion. This suggests that there may have been changes in participants' perceptions of themselves in relation to disability. The 'Acceptance' coping strategy is an important indicator of a person's tolerance of the change which has taken place and their capacity to refocus their effort at dealing with the new situation (Kerr & Thomson, 1972), and the significant effect found in the use of this strategy may therefore indicate that intervention group participants maintained a greater readiness to face new challenges compared to control group participants. These propositions are further supported by some of the participant evaluations received indicating that they felt more hopeful, confident and in control in relation to their coping efforts after attending the CET group. Interestingly, this did not seem to be so much as a result of having acquired new skills, but rather through recognising that they already possessed the "common sense" coping skills being described in the group as being sufficient to cope competently with the consequences of the injury.

This evidence, together with the clinical impressions gained from running the CET groups, can be used to inform suggestions about what were the effective therapeutic components of the intervention, though these were of course not explicitly examined in this research. It seems that two principal interdependent processes, analogous to those described in the original CET groups for men with HIV (Folkman et al., 1991; Chesney & Folkman, 1994), may have contributed to the therapeutic benefits gained:

a) Changed perceptions of disability.

Participants' catastrophic beliefs regarding the consequences of the SCI seem to have been reduced, and they were more able to contemplate a future life with the injury which, although radically changed, was still personally satisfying and meaningful. Thus living with SCI was perceived as a more manageable situation after the CET groups, allowing fundamental feelings of hope in the future to develop and assist psychological adjustment (Trieschmann, 1988).

b) Improved self-efficacy in relation to coping with SCI.

The group allowed participants to gain confidence in being able to cope with SCI, and this has been shown to be associated with improved psychological adjustment to SCI (Hansen & Tate, 1984). This seemed to happen both through gaining confidence in employing the "common sense" adaptive coping strategies which they already possessed and by recognising that they did not need to acquire an entirely new range of coping skills to face the challenge of SCI. Having an internal locus of control has also been found to be associated with better psychological adjustment to SCI (Morris, 1992; Frank et al., 1987; Frank & Elliott, 1989), and some of the participant reports of feeling more in control over their lives are suggestive of the enhanced internal locus of control which may have resulted from this process.

The promotion of these two processes was certainly one of the fundamental targets of the CET intervention. The content of all sessions aimed to challenge unrealistic negative assumptions about SCI, engender confidence in participant's ability to cope with the consequences of the disability, and increase feelings of being able to be in control of important aspects of their lives.

It was however surprising to discover how important group processes were in enhancing these effects. Participants clearly perceived the relationships with other participants in the group as the most important component of the intervention, suggesting that the social interaction and social support aspects of the group were pivotal to its therapeutic effectiveness. This may have been more objectively reflected in the considerable weight of the contribution from the 'Not Lonely/Lonely' subscale to the improvement in the SPS Total AB-negative score. This can be understood in the context of research showing that the quality of the social support available is a fundamental variable associated with good psychological adjustment to SCI (Hammell, 1994; Schulz & Decker, 1985; Judd et al., 1991), with relationships that reassure the individual of a sense of self-worth, recognise capability and competence, and facilitate social integration being especially conducive to good adjustment (Elliott et al., 1991).

The participant feedback received indicated that communicating with other patients, especially about difficulties experienced and the realistic social problem scenarios discussed, was fundamental to the therapeutic process that took place. It seems that describing previous successful or failed coping attempts to the group, receiving empathic feedback from other participants, and listening to others' similar efforts, resulted in a normalisation of one's experience of SCI. These interactions also initiated a process through which participants discovered the "common sense" nature of the successful coping strategies used by other participants, as well as the coping skills taught by the group conductor, possibly beginning to challenge beliefs about disability and about living with SCI. An increased sense of hope was instilled and the development of an improved perceived self-efficacy nurtured. This enabled participants to then engage more actively in a process of learning from each others' experiences, such as through effective role modelling, which clearly enhanced the face validity of information gained from the able-bodied group conductor.

The amelioration in depression and anxiety can therefore be understood to have resulted from changes in participant's beliefs about SCI and about having the perceived coping ability necessary to be able to continue living meaningful and satisfying lives. Group interactions with other participants seemed to fundamentally enhance the process of changing these beliefs.

These suggestions must be tempered with caution given that these processes were not empirically examined in this study, and in view of the short follow-up used. Clearly the improved social support resulting from the group was also a contributor to the amelioration in distress. As mentioned, some of the relationships established continued outside of the group and beyond the six week follow-up, but might have ended or be less prominent after discharge. If this had been the primary benefit gained from attending the CET group, one might expect treatment effects to disappear after discharge.

7.5 Clinical implications

7.5.1 Challenging views about difficulties in implementation

A number of previous researchers have reported on the difficulty of implementing psychology groups for people with SCI, reflected in poor engagement and attendance rates (Craig & Hancock, 1994; Cimperman & Dunn, 1974; Roessler et al., 1976). Although these difficulties have been partially ascribed to frequent medical complications and busy hospital rehabilitation schedules, there have also been suggestions that some of the characteristics of this client group and the primarily physical focus taken by rehabilitation staff have contributed to reducing the demand for psychology groups (Craig & Hancock, 1994). The success achieved in implementing the CET groups at the NSIC challenges these views:

1. The engagement, attendance and attrition achieved do not differ markedly from those for similar groups run for other client groups (e.g. anxiety management groups).
2. The invaluable support of other rehabilitation staff can be obtained if careful consideration and due effort is initially expended on the process of incorporating the group intervention into the overall rehabilitation programme. Thus a process of collaboration must be established through frequent communication and flexible liaison, and integration into the overall rehabilitation programme facilitated by connecting the group to existing structures, as was done with the Patient Information Group.
3. Proactive efforts at engaging patients, through making opportunities available to answer questions, address initial doubts and begin establishing a comfortable relationship, may be necessary before the start of the group but can pay good dividends in improved engagement and attendance rates.

7.5.2 Targeting clients

Regardless of the uncertainty which remains about the long-term treatment effects of the CET intervention, the improvements obtained in depression and anxiety with the associated lower levels of distress, together with the possible indirect beneficial effects on other aspects of rehabilitation, are sufficient evidence of the value of the CET intervention to warrant its continuation. The current plan is for a clinical psychologist to continue running the CET group as an ongoing component of the rehabilitation programme offered at the NSIC.

An important clinical question is whether the intervention might best be targeted at specific clients. Participants who initially scored above clinical cut-off scores showed a marked improvement in depression after the CET intervention, and there was a trend for this to be greater than that gained by participants who initially scored below clinical cut-off scores. It might therefore be suggested that the intervention should be targeted at patients who are significantly depressed or anxious.

However, it is important to note that participants who initially scored below clinical cut-offs also showed a substantial improvement in depression and anxiety, and equally expressed an appreciation for the CET groups in their evaluation. In fact, it seems that the divergence of views expressed in the sessions contributed fruitfully to the group discussion and was apparently found to be helpful both by participants who were and those who were not depressed or anxious. Thus it may be that only targeting patients who are depressed or anxious could impoverish the learning experience, diminish helpful peer support, and reduce the effectiveness of the intervention. It is therefore appropriate to continue running mixed groups.

7.6 Research implications

A recent review of the literature (McAweeney, 1996) suggests that this is one of very few controlled empirical evaluations of a psychological intervention for people with SCI, and as such is a significant contribution to the field. It has made a number of improvements on Craig et al.'s (1997) recently evaluated cognitive-behavioural groups for people with SCI. Thus, the CET intervention developed here focused on adaptive coping, rather than symptom alleviation, had a more explicit theoretical grounding, and seemed to allow therapeutic group processes to develop more effectively. Correspondingly, the improvements in psychological adjustment achieved were markedly better, with Craig et al.'s intervention resulting in no overall treatment effects, and showing improvements in depression only for participants above clinical cut-offs.

A number of further research questions emerge from this study:

a) Given the small sample size, these results must be replicated before the conclusions made can be generalised, possibly using a more rigorous random controlled trial. A longer follow-up is essential to inquire into whether treatment effects are maintained after discharge.

b) The suggestion that group processes are of primary importance as a therapeutic component of the intervention must be tested. A trial comparing the group-based CET intervention to a similar individually administered treatment would be very interesting. A recent study evaluating individual cognitive-behavioural therapy for patients with SCI has failed to find significant treatment effects (Lucas, 1997, personal communication).

c) Improvements could be made to the measures employed. It has been suggested here that changes in self-efficacy and participants' beliefs about SCI were pivotal to the improvements made, and the SPS might therefore be best replaced by well validated measures of self-efficacy, locus of control, and perceptions of disability to test these assertions.

d) The near absence of changes in the COPE needs to be further examined. Given the improvements in psychological adjustment and the positive evaluation received from participants, it is surprising to find such few changes in the coping strategies used. The explanation suggesting that the COPE emphasises dispositional coping is favoured and should be the first to be tested. A measure which focuses more directly on situational coping might be used more successfully.

There are plans to continue evaluating the CET groups at the NSIC, and to use data collected to address some of these issues.

Section 8

Conclusions

8 Conclusions

This project aimed to develop, implement and evaluate a new psychological intervention for people with spinal cord injury for improving psychological adjustment, increasing adaptive coping and decreasing maladaptive coping. The principal conclusions of this research are as follows:

1. A group-based intervention consisting of seven 60 to 75 minute long sessions running over four weeks was developed. It is grounded on the cognitive theory of stress and coping developed by Lazarus and Folkman (1984, 1988), and is an original adaptation to this client group of the Coping Effectiveness Training intervention developed by Folkman et al. (1991).

2. Proactive strategies were used to overcome the difficulties which other researchers have encountered in implementing psychology groups for people with spinal cord injury. Thus, a good collaboration was developed with other rehabilitation staff through an attentive process of communication and liaison, the intervention was well integrated by linking it to existing structures of the overall rehabilitation programme, and much effort was put into engaging patients before the beginning of the groups. The positive feedback received from other staff, together with the good patient engagement, attendance and attrition rates achieved are evidence that the intervention was successfully implemented.

3. A non-randomised controlled trial with participants from three Coping Effectiveness Training groups and carefully matched controls was used to evaluate the intervention. This consists of one of very few reported empirical evaluations of a psychological intervention for people with spinal cord injury (McAweeney, 1996). The main findings were:
i) There was a significantly greater reduction in levels of depression and anxiety in participants who attended the groups than in matched controls, and this was maintained at the

six weeks follow-up assessment. Thus the Coping Effectiveness Training groups facilitated a significant improvement in participants' psychological adjustment to spinal cord injury.

ii) There was a trend towards a significant reduction in measures of the discrepancy between participants' perceptions of themselves with and without the injury, providing some evidence of an improvement in self-concept over the observation period. A strong correlation was found between this self-concept measure and levels of depression at each assessment time. Although the absence of a control group precludes conclusions regarding the source of these changes in self-concept, this correlation together with some of the positive verbal feedback received from participants, is at least suggestive that the improvement may have been associated with attendance at the groups.

iii) There was no evidence of significant changes in the adaptive or maladaptive coping strategies used by participants who attended the groups compared to matched controls. These results indicate that, even when participants' psychological adjustment is improved, it is difficult to change the coping strategies which people report using. It has been suggested that this may partially be a result of the emphasis given by the COPE to dispositional coping. The 'Acceptance' coping strategy was an exception to this, with the intervention group maintaining a high 'Acceptance' mean score relative to that in the control group which showed a trend towards a significant reduction over the observation period.

iv) The participant evaluation of the groups was very positive, with most participants saying the groups had been helpful in making the consequences of the injury more manageable. The interaction with other participants was highlighted as the most beneficial aspect of the group. In particular, this seemed to promote the valuable processes of communication about coping successes and difficulties, normalisation, learning from others and improvement of social supports, which were reported to have lead to increased feelings of hope, confidence and of being in control of their lives.

It has been proposed that these improvements in psychological adjustment can be understood to have resulted from changes in participants' beliefs about the implications of spinal cord injury and about the coping skills which are necessary to be able to continue living meaningful and satisfying lives. Group interactions with other participants were fundamental in enhancing the process of changing these beliefs.

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Appendices

Appendix A

Ethical approval

Health Authority

Hospital NHS Trust

Local Research Ethics Committee

8 August 1996

Dr C King
Trainee Clinical Psychologist
Isis Education Centre
Warneford Hospital
Headington
Oxford OX3 7JX

Dear Dr King

Re: Project NC700 - Efficacy of coping effectiveness training in promoting adaptive coping and improving psychological adjustment to traumatic spinal cord injury.

I refer to your application to the Local Research Ethics Committee for consideration of the above project. I am pleased to inform you that the Committee approves the project on ethical grounds on the understanding that:

i Any ethical problem, arising in the course of the project, will be reported to the Committee.

ii Any change in the protocol will be reported to the Committee.

iii A brief report will be submitted after completion.

Ethical approval by the Committee is not an authority to proceed. You are advised to discuss your proposal with all heads of departments and others who might be affected, particularly if there are financial and/or staffing implications.

Please note that your research may be subject to review annually by the Committee.

Yours sincerely

R M HILL
Secretary to Local Research Ethics Committee

c.c. Mr K Cunningham - Chief Executive
Dr Paul Kennedy - Consultant Clinical Psychologist

Appendix B

Information for participants and consent form

HOSPITAL NHS TRUST

INFORMATION SHEET

I am a Trainee Clinical Psychologist working with Dr Paul Kennedy, Consultant Clinical Psychologist, in the National Spinal Injuries Centre, Hospital. We are currently planning to carry out a research study to improve our understanding of how to help people with a recent spinal cord injury adapt to the effects of their injury.

As you may already know, the National Spinal Injuries Centre is hoping to incorporate more training on coping with spinal cord injury as part of the education groups, and is very interested in assessing the effectiveness of these programmes. The research study we are planning to conduct aims to evaluate these groups. In particular we would like to assess the extent to which they are helping participants develop useful coping strategies and improving their psychological adjustment to their injury. The information obtained from this research will be used to develop a better understanding of how to promote a good adjustment to spinal cord injury, and will help ensure the continued improvement of the rehabilitation programme offered at National Spinal Injuries Centre.

I would be grateful if you would consider participating in this research study. If you agree to participate, this will involve meeting with me in the ward at a mutually convenient time on three separate occasions for about 45 minutes each time. On each occasion I will be asking you to complete some questionnaires about your current adjustment to your injury.

I would like to emphasize that participation is entirely voluntary, and that any decision you make regarding participation will in no way affect the treatment you receive or your continued involvement in the rehabilitation programme. If you do decide to participate, all the information you give will be treated as **strictly confidential**. It will also be possible to withdraw from the study at any stage if you wish to do so.

If you would like the opportunity to further discuss any aspects of this study, or any concerns you may have, then please feel free to contact Charles King, Trainee Clinical Psychologist (01865 226431) or Dr. Paul Kennedy, Consultant Clinical Psychologist, Hospital.

Many thanks for the time you have spent considering this proposal, and I appreciate that you may not wish to take part. Your participation, however, would be helpful in enhancing our understanding of these very important issues.

Charles King
Trainee Clinical Psychologist

Consent Form

Research study: Efficacy of Coping Effectiveness Training in promoting adaptive coping and improving psychological adjustment to traumatic spinal cord injury.

Section 1 - To be signed by the patient.

I ....(full name)

of ....(full address)

hereby consent to participate in the above research study.
The purpose and nature of the research study has been fully explained to me by

(Name of investigator)..

I have been given an Information Sheet which I have read and understood, and can keep for future reference.

I understand that my participation is fully voluntary, and I may withdraw my consent at any stage in the investigation without in any way affecting the treatment and care I am receiving, or will receive in the future.

I am assured that the information obtained will be treated confidentially.

If I have any further questions about the study at any time I can contact Charles King, Oxford Regional In Service Training Course in Clinical Psychology (01865 226431), or Dr. Kennedy, Consultant Clinical Psychologist, Hospital.

Signed...Dated...........................

Section 2 - Declaration by Investigator

I confirm that I have explained the nature and purpose of the above study to the participant and that his/her consent has been given freely and voluntarily.

Signed...Dated...........................

Appendix C

Summary of the Coping Effectiveness Training for people with spinal cord injury treatment manual

Appendix C: Summary of the Coping Effectiveness Training for people with spinal cord injury treatment manual

Session 1 begins with a brief overview of the aims of CET, and an exercise is used to help people introduce themselves to each other. Practical information about the group is given, and group rules discussed. The topic of stress is introduced as a normal response to demand and pressure which can be helpful in triggering coping strategies. However, when excessive or prolonged it can lead to stress reactions. Group participants are divided into pairs and asked to discuss their personal signs of stress. A group discussion is initiated on the ways in which stress can undermine enjoyment and goal achievement, and how stress reactions can be warning signs of future difficulties. The SCI as a source of stress is then explored by asking participants to consider in groups of three the external situations or events, and their internal thoughts and reactions, which contribute to their stress. This leads to an examination of the way in which subjective feelings of stress are influenced both by the reality of external events and by subjective opinions about the situation and one's ability to cope. A brief overview of cognitive theory of stress is then offered, with emphasis on describing the appraisal and coping processes. Homework consists of asking participants to further note their personal signs of stress, the ways in which these interfere with their lives, and the situations which especially trigger them.

Session 2 begins by emphasising the importance of a detailed and realistic appraisal of stressful situations for choosing the best coping strategy. The overwhelming nature of complex aggregated stressors such as the SCI is discussed. These must be broken down into smaller specific stressors in order to focus coping efforts and facilitate effective coping. Participants are demonstrated how What, Who, Where and When questions can be used to achieve this, and advised to avoid Why questions which tend to lead to unhelpful speculation. The group is divided into two to practise breaking down typical global stressors arising from the SCI into more manageable concrete stressful situations. Participants are then introduced to the topic of assessing changeability, either in external aspects of the stressful situation or in their emotional reactions to the problem. An exercise is carried out with the whole group in which assumptions about lack of possible change in important aspects of their lives (e.g. mobility, work, discharge date, social isolation) are challenged. Adaptive and maladaptive coping is then described in terms of a realistic appraisal and a good fit between degree of changeability and the problem-focused or emotion-focused coping strategies employed. Homework consists of continuing to explore the various stages of the process of establishing realistic goals for coping.

Session 3 teaches a six step model of problem solving (based on D'Zurilla & Nezu, 1982). Each participant is issued a card with a realistic problem scenario and, in turn, asked to apply the problem solving strategy to the situation. Some of the problem scenarios used are:

i) You are with a friend in a restaurant. The waiter asks him/her what you would like to eat.

ii) You are putting the wheelchair into the car and a passer-by insists on helping (almost scraping the paintwork).

iii) You are shopping. A small child runs up to you and asks "What's wrong with you?" The child's mother then runs up and drags the child away.

iv) A friend has invited you to a party, you are enjoying yourself. Half-way through the party you have a bladder accident.

v) Your family members are always trying to do everything for you.

Discussions are initiated on topics such as the effects of such situations on emotions and self-esteem, people's right to choice and autonomy, assertiveness, the dependence-independence dimension, and social isolation.

Session 4 begins with a group discussion about typical emotional reactions to SCI, such as low mood, anxiety and anger. The interaction between thinking, feelings and behaviour in cognitive models of depression and anxiety is then outlined. The importance of finding effective ways of preventing the undermining of confidence and control which can ensue is emphasised. Having a balance between pleasant, neutral and unpleasant activities in one's life is suggested as a way of avoiding depressed mood, and a discussion is initiated on difficulties in achieving this. Negative assumptions about "not being able to do anything enjoyable anymore" are challenged in a group exercise in which a long list of typical leisure activities are shown on overheads and participants are asked whether the SCI prevents them from engaging in these activities. A discussion is initiated on adapting leisure activities and learning new ones. Activity scheduling skills are taught, and participants are asked to engage in three pleasant activities before the next session. Relaxation training is then introduced, and auto-hypnotic relaxation skills taught with the help of an audio-tape especially developed for working with SCI patients (Kennedy, 1997). A copy of the tape is given to all participants, and they are encouraged to use it before the next session.

Session 5 begins by describing the possible links between negative assumptions and beliefs and negative thinking and emotions. A number of characteristic negative assumptions are described, such as " I should not make mistakes and should be competent at all times", " It is better to risk challenges than to risk failure" and "The world ought to be fair", and a group discussion initiated on the effects of such assumptions. A range of common negative automatic thoughts in patients with SCI, such as "I can't cope with this" and "I will never enjoy anything again", are used to describe the effects of negative thinking on emotions, and the importance of challenging irrational thinking emphasised. Skills for challenging irrational thinking are taught, including recognising and exploring the effects of negative thoughts, seeking evidence for and against the thoughts, and exploring alternative more realistic and constructive explanations. In pairs, participants are asked to practice some of these skills with negative thoughts they have experienced recently. Homework consists of further noting the relationship between thinking and emotions.

Session 6 is used initially as an opportunity to review all the work done up to now and elicit any new questions or comments from participants. Open discussions are again initiated on key themes such as the emphasis on realistic appraisal, the importance of actively confronting problems, challenging irrational negative assumptions, and the evidence in support of being able to establish meaningful fulfilling lives after SCI. The topic of individualised flexible coping is introduced by describing a range of commonly used coping strategies, such as acceptance, positive reframing, active coping, social support, religion and humour. Different people favour different strategies at different times, and the importance of continuous reappraisal is described as a way of maintaining effective coping within changing contexts. Examples from different stages in the rehabilitation process, such as bed rest, active rehabilitation and discharge into the community, are used to examine this. Research indicating the association between specific maladaptive coping strategies (behavioural and mental disengagement, denial, expressing extreme emotion and using alcohol and drugs) and future depression and anxiety is then used to discuss the effects of these strategies, and a group exercise used to elicit alternative coping approaches. Homework consists of asking participants to assess the coping strategies they typically use, and consider whether they are adaptive or maladaptive.

Session 7 focuses on the importance of social support in helping long-term adjustment to SCI. The differences between aggressive, submissive and assertive behaviour are described, and in pairs participants are asked to discuss different possible responses to a further series of realistic social problem scenarios. A group discussion is initiated on the difficulties of being assertive, and people's social rights and responsibilities, such as freedom of opinion, choice and autonomy, examined in this context. The importance of establishing and maintaining supportive relationships to facilitate adaptive coping with the consequences of SCI is then highlighted. The different possible functions which can be served by social support are examined, namely providing information and advice, tangible support and help or emotional support. The stages of choosing, obtaining and maintaining appropriate social support are explored using participants' examples of important sources of social support for them. The group finishes by emphasising that participants do have the skills necessary to successfully tackle the challenges of the SCI, and by further highlighting evidence in support that an enjoyable, meaningful and well adjusted life after SCI is the norm.

Appendix D

Standardised measures

(DEMOGRAPHIC DATA)

(A)

C.S.No. ________________

File No. ________________

Sex ________________

Surname ________________

Christian Names ____

Full Postal Address ____

____ Post Code ________

Home Phone No. __________ __________

Work Phone No. __________ __________

(B)

Occupation ____

Employment Status ___ Unemployed Retired Working Student Volunteer

Annual Income ______ $0-1999 $2000-4999 $5000-9999 $10000-19999
$20000-29999 $30000-39999 $40000+

Qualifications ____

Father's Occupation ____

Mother's Occupation ____

Spouse's Occupation ____

Sibling's Occupations ____

____

(C)

Civil Status __ Single Courting Married Divorced Widowed Separated

Number of Dependants ____

Dwelling Status ___ Alone Parents Spouse Siblings Boy/Girl-friend
Other ____

(D)

Date of Birth ________________

Date of Injury ________________

Cause of Injury_(Traumatic)
R.T.A. Motorcar
R.T.A. Motorcycle
R.T.A. Pedestrian
R.T.A. ____________ (Other)
Sport Soccer/Rugby
Sport Diving
Sport Horseriding
Sport ____________ (Other)
Fall Industrial
Fall Domestic
Personal Assault

(Non-Traumatic) Congenital
Acquired

Summary Description of Cause ____

____

Other Injuries Received at the Time ____

____

Loss of Consciousness ____

Post-Traumatic Amnesia ____

Level of Injury ____

Extent of injury ________________________ Complete / Incomplete

Part V (FUNCTIONAL INDEPENDENCE MEASURE)

Instructions:

On this questionnaire please indicate your level of independence by placing the appropriate number in the box next to each item. Enter 7 if you are completely independent, 6 for modified independence (i.e. use of a device), 5 for modified dependence (ie.requiring supervision), 4 if minimal assistance is needed (ie. do c.75% yourself), 3 if moderate assistance is needed (ie. do c.50% yourself), 2 if maximal assistance is needed (ie. do c.25% yourself) or 1 if total assistance is needed (ie. do c. 0% yourself). 1 is also the number you should enter if an item on the questionnaire is not applicable to you.

Self Care

A. Feeding ☐
B. Grooming ☐
C. Bathing ☐
D. Dressing-Upper Body ☐
E. Dressing-Lower Body ☐
F. Toileting ☐

Sphincter Control

G. Bladder Management ☐
H. Bowel Management ☐

Mobility

Transfer:
I. Bed, Chair, W/Chair ☐
J. Toilet ☐
K. Tub, Shower ☐

Locomotion

L. Walk/Wheel Chair W/C ☐ ☐
M. Stairs ☐

Communication

N. Comprehension a/v ☐ ☐
O. Expression v/n ☐ ☐

Social Cognition

P. Social Interaction ☐
Q. Problem Solving ☐
R. Memory ☐

Total ☐

SHORT FORM SOCIAL SUPPORT QUESTIONNAIRE (SSQ6)

Name: ....

Date: .... Age: .... Sex: M F

Instructions

The following questions ask about people in your environment who provide you with help or support. Each question has two parts. For the first part, list all the people you know, excluding yourself, whom you can count on for help or support in the manner described. Give each person's initials and their relationship to you (see example). Do not list more than one person next to each of the numbers beneath each question. Do not list more than nine people per question.

For the second part, using the scale below, circle how satisfied you are with the overall support you have.

6	5	4	3	2	1
Very satisfied	*Fairly satisfied*	*A little satisfied*	*A little dissatisfied*	*Fairly dissatisfied*	*Very dissatisfied*

If you have no support for a question, tick the words 'No one', but still rate your level of satisfaction. The example below has been completed to help you. All your responses will be kept confidential.

Example

Who do you know whom you can trust with information that could get you in trouble?

(a) No one
1) TEN (Brother)
2) LM (Friend)
3) RSS (Friend)
4) PEN (Father)
5) LM (Employer)
6)
7)
8)
9)

(b) How satisfied? 6 5 [✓ 4] 3 2 1

(1) Whom can you really count on to distract you from your worries when you feel under stress?

(a) No one	3)	6)	9)
1)	4)	7)	
2)	5)	8)	

(b) How satisfied? 6 5 4 3 2 1

(2) Whom can you really count on to help you feel more relaxed when you are under pressure or tense?

(a) No one	3)	6)	9)
1)	4)	7)	
2)	5)	8)	

(b) How satisfied? 6 5 4 3 2 1

(3) Who accepts you totally, including both your worst and best points?

(a) No one	3)	6)	9)
1)	4)	7)	
2)	5)	8)	

(b) How satisfied? 6 5 4 3 2 1

(4) Whom can you really count on to care about you, regardless of what is happening to you?

(a) No one	3)	6)	9)
1)	4)	7)	
2)	5)	8)	

(b) How satisfied? 6 5 4 3 2 1

(5) Whom can you really count on to help you feel better when you are feeling generally down-in-the-dumps?

(a) No one	3)	6)	9)
1)	4)	7)	
2)	5)	8)	

(b) How satisfied? 6 5 4 3 2 1

(6) Whom can you count on to console you when you are very upset?

(a) No one	3)	6)	9)
1)	4)	7)	
2)	5)	8)	

(b) How satisfied? 6 5 4 3 2 1

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SELF-EVALUATION QUESTIONNAIRE

Developed by Charles D. Spielberger
in collaboration with
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs

STAI Form Y-1

Name ______________________________ Date __________ S ____

Age __________ Sex: M ____ F ____ T ____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel *right* now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	1	2	3	4
2. I feel secure	1	2	3	4
3. I am tense	1	2	3	4
4. I feel strained	1	2	3	4
5. I feel at ease	1	2	3	4
6. I feel upset	1	2	3	4
7. I am presently worrying over possible misfortunes	1	2	3	4
8. I feel satisfied	1	2	3	4
9. I feel frightened	1	2	3	4
10. I feel comfortable	1	2	3	4
11. I feel self-confident	1	2	3	4
12. I feel nervous	1	2	3	4
13. I am jittery	1	2	3	4
14. I feel indecisive	1	2	3	4
15. I am relaxed	1	2	3	4
16. I feel content	1	2	3	4
17. I am worried	1	2	3	4
18. I feel confused	1	2	3	4
19. I feel steady	1	2	3	4
20. I feel pleasant	1	2	3	4

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Self Perception Scale

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

This questionnaire has been designed to help us discover how people with spinal cord injury feel about themselves with regards to a number of specific dimensions. Each dimension will be read out to you as two opposites such as "friendly and unfriendly". What I would then like you to do is to say whether you are 1) very friendly, 2) slightly friendly, 3) neither friendly or unfriendly, 4) slightly unfriendly, or 5) very unfriendly. There will be eleven such dimensions read to you and you should give your answers with as little delay as possible. Do you have any questions before we begin?

1	LETHARGIC________	1 2 3 4 5	________	ENERGETIC
2	CONFIDENT________	1 2 3 4 5	________	NOT CONFIDENT
3	BORED________	1 2 3 4 5	________	INTERESTED
4	SATISFIED________	1 2 3 4 5	________	DISSATISFIED
5	INACTIVE________	1 2 3 4 5	________	ACTIVE
6	OPTIMISTIC________	1 2 3 4 5	________	PESSIMISTIC
7	SOCIABLE________	1 2 3 4 5	________	WITHDRAWN
8	LONELY________	1 2 3 4 5	________	NOT-LONELY
9	UNDERSTANDING________	1 2 3 4 5	________	INTOLERANT
10	INDECISIVE________	1 2 3 4 5	________	DECISIVE
11	IMPROVING________	1 2 3 4 5	________	DETERIORATING

Tick as appropriate: A......as I am
B......as I would be without the injury
C......as I would be ideally

(COPE)

Instructions

We are interested in how people respond to this kind of injury. There are many ways of dealing with this kind of event. This questionnaire asks you to indicate how you are feeling and what you are experiencing <u>now</u>.

We appreciate that this is a difficult time for you but we believe that the results of this research will help us be more responsive to the needs of people who have recently been injured.

Please respond to each of the items on the questionnaire by ticking one number for each, using the response choices listed below. Please try to respond to each item separately in your mind from each other item.

Choose your answers thoughtfully and make the answers as true <u>for you</u> as you can. Please answer every item. There are no "right" or "wrong" answers, so choose the most accurate answer for you now, at this point in time, and not what you think "most people" would say or do.

Response Choices:
1 = I usually <u>don't</u> do this <u>at all</u>.

2 = I usually do this <u>a little bit</u>.

3 = I usually do this <u>a medium amount</u>.

4 = I usually do this <u>a lot</u>.

	1	2	3	4
1. I try to grow as a person as a result of the experience.				
2. I turn to work or other substitute activities to take my mind off things.				
3. I get upset and let my emotions out.				
4. I try to get advice from someone about what to do.				
5. I concentrate my efforts on doing something about it.				
6. I say to myself "this isn't real".				
7. I put my trust in God.				
8. I laugh about the situation.				
9. I admit to myself that I can't deal with it, and give up trying.				
10. I restrain myself from doing anything too quickly.				
11. I discuss my feelings with someone.				
12. I use alcohol or drugs to make myself feel better (or would like to).				
13. I get used to the idea that it happened.				
14. I talk to someone to find out more about the situation.				
15. I keep myself from getting distracted by other thoughts or activities.				
16. I daydream about things other than this.				
17. I get upset, and am really aware of it.				
18. I seek God's help.				
19. I make a plan of action.				
20. I make jokes about it.				
21. I accept that this has happened and that it can't be changed.				

	1	2	3	4
22. I hold off doing anything about it until the situation permits.				
23. I try to get emotional support from friends or relatives.				
24. I just give up trying to reach my goal.				
25. I take additional action to try to get rid of the problem.				
26. I try to lose myself for a while by drinking alcohol or taking drugs (or would like to).				
27. I refuse to believe that it has happened.				
28. I let my feelings out.				
29. I try to see it in a different light, to make it seem more positive.				
30. I talk to someone who could do something concrete about the problem.				
31. I sleep more than usual.				
32. I try to come up with a strategy about what to do.				
33. I focus on dealing with this problem, and if necessary let other things slide a little.				
34. I get sympathy and understanding from someone.				
35. I drink alcohol or take drugs in order to think about it less (or would like to).				
36. I kid around about it.				
37. I give up the attempt to get what I want.				
38. I look for something good in what is happening.				
39. I think about how I might best handle the problem.				
40. I pretend that it hasn't really happened.				
41. I make sure not to make matters worse by acting too soon.				

	1	2	3	4
42. I try hard to prevent other things from interfering with my efforts at dealing with this.				
43. I watch TV, to think about it less.				
44. I accept the reality of the fact that it happened.				
45. I ask people who have had similar experiences what they did.				
46. I feel a lot of emotional distress and I find myself expressing those feelings a lot.				
47. I take direct action to get around the problem.				
48. I try to find comfort in my religion.				
49. I force myself to wait for the right time to do something.				
50. I make fun of the situation.				
51. I reduce the amount of effort I'm putting into solving the problem.				
52. I talk to someone about how I feel.				
53. I use alcohol or drugs to help me get through it (or would like to).				
54. I learn to live with it.				
55. I put aside other activities in order to concentrate on this.				
56. I think hard about what steps to take.				
57. I act as though it hasn't even happened.				
58. I do what has to be done, one step at a time.				
59. I learn something from the experience.				
60. I pray more than usual.				

Appendix E

Differences in outcome between Group 1 and Groups 2 & 3