



Scientific Review

The psychological effects of spinal cord injury: a review

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Spinal cord injury (SCI) usually necessitates considerable changes in the life of an individual, and their family members. SCI may demand difficult psychological adjustment and in addition place great strain on family roles and relationships. Glass (1993) summarises the situation thus: 'The experience of spinal cord injury is one of the most devastating injuries which might affect an individual. The resultant disability, after which normal cognitive function and intellectual ability usually remains, produces not only an inability to move and feel limbs, but also the inability to control the function of internal organs and even, in severe cases, the ability to breathe independently.'¹

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Introduction

Prior to the early 1940s, 80% to 90% of people with spinal cord injury died within weeks.² A few, with chronic ill health did manage to survive for 2–3 years before they eventually died with sepsis, mainly from the urinary tract and as a result of pressure sores.³ Changes developed relatively rapidly and by the late 1940s people with SCI were able to move back out into the community and could hope to live for about 10 years.⁴ This situation has continued to improve so that currently during the first 12 years after injury, cumulative survival has risen to about 88% of what would be expected in the absence of injury (US figures), with even better survival rates for younger patients, those with paraplegia and those with incomplete neurology.⁵

Despite these improvements in survival following injury, our knowledge of the psychological effects of SCI have not necessarily kept abreast. The immediate psychological consequences of injury are poorly understood, possibly because the early stages of SCI are complicated by the effects of medication,⁴ sensory deprivation,⁶ and pain.⁷ The presence of these aspects of SCI may delay the full realisation of the significance of the injury on the individual and their life.

Many people, however, report they were conscious of their paralysis and its implications at the time of their accident, and some reports suggest that in excess of 50% of individuals were aware of their paralysis from the outset.⁸ Reports include an immediate awareness of being unable to move, a loss of sensation and a distortion of body image. This awareness may not, however, be universal.

The early reactions to SCI are speculative rather than based on fact and this is an area where further research is required. An early theoretical model proposed that the initial reaction is characterised by a process of denial preventing an individual from facing the sudden changes in themselves and the implications of this for the future.⁹ An alternative model proposes that the immediate psychological reactions could be viewed as 'normal' reactions to an abnormal situation.¹⁰ In this model the immediate reaction is characterised by a range of conflicting emotions which may include numbness, disbelief, anger, fear, hope and despair.¹¹ It is viewed as a period of emotional turmoil and disorganisation in which individuals may see their world as fragmented and uncertain. Part of the stress reaction has been viewed as a desperate attempt to give sense and meaning to a 'disintegrated' world. It is postulated that this type of psychological disturbance is a necessary process leading to readjustment and can, therefore, be viewed as appropriate and normal.¹¹ Any idea, that these emotional reactions follow a particular sequence with fixed stages, through which everyone must pass, is highly questionable.¹² Whilst either or both of these models may account for an individual's reactions in varying degrees, it must be remembered that the population of people with spinal cord injury is heterogeneous in terms of age, level of injury, social class and education and the immediate reactions may be as varied as the pre-injury personalities.

Later psychological effects

Anxiety and depression have been viewed by many clinicians as an inevitable consequence of spinal cord

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injury.¹³ These findings were based universally on clinical impressions of the authors without the benefit of more stringent definitions of anxiety and depression or objective standardised measures to establish the presence of mood disorder.

More recent controlled studies have suggested that anxiety and depression are not an inevitable consequence of SCI.^{14–20} These studies suggest that approximately 25% of individuals with SCI experience clinically significant levels of anxiety whereas individuals who are acting as controls have significantly lower levels around 5%. The individuals with SCI have clinically significant levels of depression in approximately 27% of cases whereas a much smaller percentage of controls, approximately 3%, fell into this category.^{17,18} The research suggests that these raised levels of anxiety and depression do not diminish significantly over a 2 year period. The individuals with spinal cord injury therefore have substantially higher risks of suffering from mood disorders compared to controls.

Studies have attempted to predict the determinance of mood disorder over time and have, for example, found that higher levels of pain experienced post-injury and feeling out of control of one's life prior to hospital discharge tend to predict higher levels of depression, for example following injury.¹⁹

The research therefore tends to suggest that approximately 30% of individuals with SCI have clinically significant levels of anxiety and depression. A growing body of evidence however suggests that in day-to-day clinical practice, the detection of psychological problems in patients facing severe illness is extremely low and has been estimated at a figure of less than 10%.^{21–23} One of the reasons put forward to account for this is a thought pattern prevalent amongst health care professionals in which the presence of mood disorders in individuals with SCI is normalised.²⁴ This apparent normalisation of mood disorder tends to leave the individual without intervention. The detection of psychological problems in individuals following SCI is vital as research suggests that those individuals who experience high levels of anxiety and depression benefit significantly from therapies such as cognitive behaviour therapy.²⁵ In fact, research suggests that individuals with SCI can be 'immunised' against anxiety and depression if cognitive behaviour therapy is provided early on in their rehabilitation following injury.²⁶ Studies suggest that the provision of cognitive behaviour therapy during the rehabilitation period not only improves mood in the individual but also improves relationships, perceived adjustment and social discrimination for several years after treatment, and decreases hospital readmissions.²⁷

The detection of anxiety and depression in individuals with SCI becomes even more important when studies looking at suicide rates in this area are reviewed. It has been suggested that the suicide rate amongst individuals with SCI may be 4–5 times that

of the age, sex, race specific rates for the general population, and psychological factors such as mood disorders are likely to be implicated for some of these individuals.²⁸

An aspect where further research is required in spinal cord injury is in the area of Post Traumatic Stress Disorder (PTSD). PTSD has been reported following a range of traumatic and life threatening events such as road traffic accidents, medical procedures, assault and disaster to name but a few.^{29–33} Given that a significant number of spinal cord injuries are sustained in trauma situations such as road traffic accidents, one might assume that PTSD following spinal cord injury would be a significant problem. Some authors suggest that symptoms of PTSD are often higher among injured survivors of stressful events than non-injured survivors.³⁴ PTSD in the field of SCI however has been largely un-researched. Small studies do suggest that it is a significant problem in this population.³⁵

Other factors which affect the psychological state

A variety of factors relating to the experience and treatment of spinal cord injury potentially have an effect on the psychological state of the patient with spinal cord injury.

Pain

Pain continues to be a problem for individuals following spinal cord injury,^{36,37} and an incidence of between 33% to 94% has been reported in a number of studies.^{38,39} Ongoing pain has been shown to be associated with depression¹⁹ and also quality of life.⁴⁰ It has been found that a relationship between pain and depression develops over time but that changes in pain are more likely to have an effect on depression than the converse.⁷ In a study of 46 patients admitted with traumatic spinal cord injury to a rehabilitation hospital within 2 years of trauma, 46% experienced pain of a moderate to severe intensity and 70% of those with significant pain experienced symptoms of emotional distress. Those individuals who were experiencing pain not surprisingly reported a reduced quality of life compared to those without pain.⁴¹ Other studies have examined the psychological factors related to chronic spinal cord injury pain, and have reported that these factors are closely associated with this experience of pain in individuals with spinal cord injury. The related psychological factors included depressed mood, anxiety, low acceptance of injury and people who perceived that their significant other was punishing them. The pain severity was associated with emotional and cognitive factors therefore rather than physiological factors, and those patients who experienced pain following injury reported it to be a significant problem over and above the interference caused by the injury itself.⁴²

This data suggests that pain is an important and significant factor in assessing the psychological effects of spinal cord injury and that it makes a major contribution to quality of life. The data also suggests that psychological interventions designed to control pain such as relaxation, distraction or goal setting and pacing techniques should be an important component of the rehabilitation process.

Medication

Following spinal cord injury patients frequently take a variety of medications to help with problems such as pain or spasm. The effects of analgesics on mood and cognitive function have been well documented.^{43–45} Spasm, however, is frequently treated with the drug baclofen, which is usually well tolerated but some adverse side effects such as sedation, confusion and fatigue, have been reported.^{46–49} Studies certainly report a decrease in vigour and an increase in fatigue due to the use of the baclofen, which may in turn have an adverse effect on psychological state, although preliminary research evidence is still rather sparse in this area.⁴⁶ Baclofen has also been found to compromise erection and ejaculation in patients following spinal cord injury, which in turn may also have an adverse psychological effect on them.⁵⁰

Isolation

Periods of isolation have become more common following spinal cord injury, particularly with the increasing problem of methicillin-resistant staphylococcus aureus (MRSA) which is a bacterium transmitted via direct person to person contact. Patients who are identified as being MRSA positive require immediate isolation whilst they remain positive and this period may be for many months. This obviously has an impact on the rehabilitation programmes for these individuals and long periods of isolation have previously been described as being psychologically detrimental.⁵¹

Periods of isolation have been found to lead to disturbances of thought and cognition and may result in strange perceptual changes.⁵² Other studies have found that patients in intensive care units frequently experience fluctuating states of consciousness, fatigue, distraction, confusion and disorientation, agitation and depression.⁵³

A period of isolation, therefore, not only interrupts the progress of rehabilitation but may lead to psychological difficulties. A recent study of MRSA positive patients following spinal cord injury found that they felt more angry as measured by the Profile of Mood States, Anger-Hostility Scale. They also scored higher than an MRSA negative control group on measures of dependence, depression and anxiety. The majority of the patients who are MRSA positive felt that their rehabilitation had been adversely affected and 50% of the group reported an adverse effect on

their mood.⁵⁴ Clearly therefore factors such as isolation potentially have a detrimental effect on patients with spinal cord injury.

Medical complications and body image

Following spinal cord injury many patients develop pressure sores which interrupt their rehabilitation and can cause them additional problems.⁵⁵ The development of pressure sores has been found not only to be related to physical factors but is also related to psychosocial factors as well, such as satisfaction with different areas of life and self-concept.⁵⁶ It has been found that psychosocial variables predict not only the presence or absence of pressure sores but also the extent of them and their persistence.⁵⁶ The implications for the recognition of psychological problems is therefore important in this particular area.

Pressure sores themselves may also have an adverse effect on psychosocial aspects of the individual. Studies have found that they form an important predictor of life satisfaction and general quality of life.⁵⁷

Spinal cord injury by necessity frequently results in marked changes in body image for the individual.⁵⁸ For many people this change in body image may cause significant psychological trauma and they may require psychological intervention in order to help them reintegrate the loss of their former body image and its effects into their new state.⁵⁹ Other elements of the spinal cord injury experience such as the use of a halo brace may also further distort and disrupt body image and self-concept, requiring significant psychological interventions in order to help the individual readjust.⁶⁰

Cognitive problems following spinal cord injury

Recent research in the field of SCI had highlighted the presence of cognitive deficits in this particular group of individuals. Studies suggest that approximately 40% to 50% of patients have varying degrees and patterns of cognitive impairment.⁶¹ These deficits include difficulties with attention, concentration, memory, problem solving, abstract reasoning, new learning and higher level cognitive skills as well as changes in personality and emotional state.^{62,63}

The factors which contribute to these deficits are varied. Some patients may have sustained a traumatic brain injury at the time of their accident and these may be of varying severity. Others may have secondary 'trauma' as a result of factors such as cerebral oedema, hypoxia and anoxia. Other patients may have a history of previous alcohol or substance abuse which in turn may have led to impairment in cognitive function. Recent studies have also reported cerebral effects in individuals subjected to whiplash injuries alone and clearly many SCI patients have sustained this type of injury during their accident.⁶⁴ In addition some medications commonly used in acute SCI settings may also adversely interfere with

neuropsychological functioning as indeed may dis-orders of mood such as anxiety and depression.⁶¹

More recently researchers have turned their attention to the area of sleep disordered breathing, which is common in patients of tetraplegia.⁶⁵ It has recently been shown that sleep hypoxia, which is the consequence of sleep apnoea-hypopnoea, is associated with reductions in neuropsychological function. The neuropsychological functions most affected in individuals where there is nocturnal desaturation have been found to be verbal attention and concentration, immediate and short term memory, cognitive flexibility, internal scanning and working memory.⁶⁶ The conclusion of this study is that sleep disordered breathing in individuals with tetraplegia may be accompanied by significant oxygen desaturation, which impairs daytime cognitive function. The cognitive disturbances resulting from this problem may adversely affect rehabilitation in patients with tetraplegia.

Assessment of cognitive abilities is vital as comprehensive rehabilitation after SCI involves intensive programmes of learning new information and skills and adapting to a new lifestyle. Patients with SCI need to learn radically new methods for mobility, self-care and reintegration into the community. Thorough cognitive assessment of strengths or weaknesses can provide information that can aid in developing focused rehabilitation programmes for such patients. Research suggests that rehabilitation programmes for individuals with brain injury can substantially improve difficulties with memory, attention and problem solving as well as with difficulties such as poor anger control and mood disturbance.^{67,68}

Other psychosocial consequences of spinal cord injury

The literature concerning the long term psychosocial consequences of SCI such as self-neglect, divorce and separation, and alcohol and drug abuse suggest that this population has difficulty in adjusting in some areas. One of the largest studies examining the prevalence of self-neglect in this area assessed 400 patients.⁶⁹ Nine per cent of the sample exhibited self-neglect requiring psychiatric referral. The behaviour that these patients exhibited consisted mostly of non-co-operation, refusal to accept medication or treatment and inattention to skin and bladder care, and in all cases, represented a significant threat to patients' lives. SCI frequently results in high levels of dependence and it is not surprising therefore that couples are under extreme pressure to adapt and cope following this type of injury. Surprisingly recent studies do not report high levels of separation and relationship breakdown. Recent studies have reported that as many as 82% of people with SCI who are married or living with a partner prior to the injury had remained together after the injury.^{27,70} Even those individuals who were single prior to their injury have been found in a significant

number of situations to find a stable partner and relationship following injury.²⁷

Alcohol and drug abuse have become an increasing area of concern in this population. Significant levels of both alcohol and drug use have been found, particularly in those patients who are troubled with pain following their injury. There is increasing evidence for the use of marijuana to control both pain and spasticity following injury and SCI patients have also been found to use the drug as a method of stress management.⁷¹

Factors predicting favourable psychological outcome

A number of factors have been isolated in predicting successful adjustment to SCI. Age has been found to be a significant factor in that younger patients adjust better to SCI than older persons.⁷² Sex has been found to be relevant in that females are more accepting of SCI than males, even controlling for the discrepant percentages of males and females suffering injury.⁷³ Certain personality traits have been found to be associated with a favourable outcome. Those patients who believe that they have a high degree of personal control over events, situations and health (Internal Locus of Control) experience less psychological distress than those who believe that they have little personal control (External Locus of Control) over their situation.⁷⁴ The former group of people experience less depression, more adaptive behaviour and as a result better health.⁷⁴

Social support is frequently described as having an important positive effect on psychological distress following stressful life events such as spinal cord injury. It is a concept which is defined in a number of different ways; however most research distinguishes between the structural aspects of social support such as the numbers of people available to provide support and the functional aspects of social support such as the perceptions of an individual in terms of how supported they feel by other people.⁷⁵ The 'buffering hypothesis' in the field of social support predicts that there will be lower levels of distress in those individuals who perceive that they have good quality of social support.⁷⁶ Studies have found that the quality of social support is inversely related to psychological distress and acts as a buffer against the stressful effects of injury rather than the number of people providing social support. This has been reported in individuals with SCI at 6 weeks and 4–7 years after injury.⁷⁷ The importance of social support has been shown in other studies which have reported that the lack of adequate social support can be viewed as a major risk factor in terms of a failure to recover from depressive illness. It has also been found that a lack of social support is related to the prevalence of the development of suicidal plans in individuals following injury.⁷⁸

Those people with SCI who believe that they receive support from the community, compared to those who

believe that they receive less support, perceive themselves to be better adjusted to their injury and also experienced fewer health problems (fewer spinal cysts, lower blood pressure, shorter recovery time from decubitus ulcers, less pain below the level of injury and fewer hospital admissions). The same results were also found in those patients who believe that they contributed to the community in which they lived compared to those who believe they contributed little or nothing.⁷⁹ Social support is clearly an important mechanism through which individuals are helped to adjust to spinal cord injury.

Finally, communication is an essential element in the adjustment process. Those patients who feel that they are as well informed as possible about their situation and feel that they have good communication with health care professionals tend to be better adjusted than those who do not.⁸⁰ Even tape recording interviews between patients and doctors in situations where the condition from which the patient suffers is life-threatening and untreatable has been found to facilitate coping and improve the retention of information.⁸¹ The benefit of improved communication skills for patients, their families and the health care system are considerable both in psychological and financial terms.⁸⁰

Effects on the family

Spinal cord injury imposes multiple stresses not just for the patient but also for their family. The impact is far reaching and family relationships and roles may be radically changed. Chronic health problems, feelings of frustration, isolation, guilt and even resentment have been reported in family members of individuals with spinal cord injury.⁸² It has been reported that it is not only the perception of physical disability and distress in the patient that creates emotional difficulties for their families but it is wider ranging factors such as severe financial hardship or the prospect of financial difficulties which are likely to occur as employment is adversely affected.⁸³

Other studies have reported that the effect of injury on the patient's spouse has been to create a sense of vulnerability in them in terms of the security of the marital relationship. Spouses have reported that they have a stronger fear of separation and a higher sense of dependency as a result of the injury.⁸⁴ It has also been reported that spouses report higher levels of depression, physical stress, emotional stress, anger and resentment than the individual with spinal cord injury.⁸⁵ This of course has important implications for the psychological support offered to family members following spinal cord injury.

The family play an important part in helping the patient adjust to spinal cord injury⁸⁶ but unfortunately research in this area has been slow to develop and is rather scant. It is an important area for future research and well controlled longitudinal studies are essential if

we are to gain a more complete understanding of the impact of injury on the family system.

Sexual adjustment

Spinal cord injury may impose marked changes on aspects of sexual relationships and sexuality. It must be stated, however obvious, that individuals following spinal cord injury do not lose their needs and desires in terms of sexual expressiveness and need for sexual intimacy. Whilst the literature indicates that many people following spinal cord injury report their sexual relationships to be satisfying, which is also reported by their partners.⁸⁷ Other studies particularly when examining the effects of spinal cord injury on the sexual relationships of women indicate significant decreases in sexual satisfaction and drive^{88,89} and also indicate that the majority of individuals receive very little sexual counselling following their injury which might be helpful in maximising sexual satisfaction and relationships.⁸⁹ Clearly more research is needed in this area and in particular looking at the issue of female sexuality and also the value of sexual counselling in this arena.

Individuals who are ventilator dependent

With recent advances in medical technology increasing numbers of people survive high spinal cord injury but are dependent on technology. These individuals who are ventilator dependent present a considerable challenge to us, both in terms of helping them adjust to their situation and also the ethical life *versus* death dilemma that this presents.⁹⁰ Case reports exist which describe the ethical dilemma in this situation for those people who find that their quality of life is unacceptable. Other reports exist which describe the medical and legal issues surrounding this area of 'choice to end life'.⁹¹

Research indicates that individuals who are ventilator dependent can be discharged home in order to live a life in the community.⁹² The studies suggest that for many people who are ventilator dependent they report that they are 'glad to be alive'.^{92,93} The majority of patients at home were found not to have elevated levels of anxiety and depression except in the early stages following discharge from hospital.^{92,93} High levels of interaction, clarity of communication, expressiveness and low levels of conflict have also been described in this group of people.^{92,93}

The families of individuals who are ventilator dependent describe high levels of cohesion as an important factor in maintaining the family structure, and the view of the family is to maintain as normal a family life as possible in this situation.^{92,93} Spinal injury centres clearly demonstrate that people who are ventilator dependent can be re-established in their own homes and that this level of disability need not prevent individuals from returning to their community and starting to develop a life style again.⁹⁴

Clearly this area of spinal cord injury needs further research particularly in understanding the psychological sequelae of high level spinal cord lesions which necessitate ventilator dependence. Methods of returning control to the individual in this situation need to be investigated and the traditional boundaries between hospital and community need to be modified. There are family issues which require further investigation and an ethical debate will no doubt continue.

Effects on staff of SCI

A number of studies indicate that the experience of staff working with SCI is very stressful and may have a marked impact on these individuals.^{95,96} One study observed that students in a 10 week rehabilitation nursing course became acutely depressed and pessimistic about the prospects of working with individuals with spinal cord injury particularly if they were tetraplegic.⁹⁶ Other studies suggest that the picture is more complicated than this and that staff members for example who have a more realistic view of the expectations of the rehabilitation process and its effect on an individual may have lower levels of distress.⁹⁷ There is clearly a role for psychological support of all staff working within the area of spinal cord injury, although research in this area is rather sparse at the present time. A number of authors, however, have described that the emotional adjustment of both the patient and the staff is essential for successful rehabilitation.⁹⁸

Psychological interventions following spinal cord injury

The psychosocial sequelae of spinal cord injury suggest that there is a need for psychologically based therapies aimed at improving the quality of life of the patient and their family. Access to specialised psychological therapies however may be variable depending on the organisation of services in any locality. A number of authors have highlighted that a range of different interventions undertaken by psychologists should entail a combination of factors which include consultation within the rehabilitation team, application of learning principles to the rehabilitation process, specific application of learning principles in individual cases, research into the rehabilitation process, psychological evaluation of patients assets and strengths, counselling and therapy, teaching and training and administrative duties.⁹⁹ Some authors have suggested that the absence of psychological services and support may reflect an attitude in that the provision of psychological interventions is viewed as being less important than that of physical rehabilitation and as a result may not be considered.¹⁰⁰

A number of anecdotal reports indicate that group therapy and counselling techniques may improve adjustment to SCI.¹⁰¹⁻¹⁰⁵ Counselling for example has been found to enhance self-responsibility and self-

control and as a result reduce negative life indicators.¹⁰⁵ Other studies have compared the influence of agency care with self-managed care on quality of life of individuals with SCI and have followed these individuals up at least 1 year after injury. The results suggest that self-managed care resulted in fewer hospitalisations, fewer physical complications and higher levels of perceived quality of life and perceived health.¹⁰⁶

More recently studies have concentrated on the use of cognitive behaviour therapy on individuals with SCI. The assessments were made prior to the commencement of therapy, immediately after therapy and 12 months later. A control group was utilised receiving traditional rehabilitation services only but there was no randomisation to intervention or control. The results initially suggested that there were no significant differences between the groups in terms of anxiety, depressive mood and self-esteem. A further analysis, however, revealed that those individuals in the treatment group who reported high levels of depressive mood before the cognitive behavioural therapy treatment were significantly less depressed 1 year after their injury when compared to similar individuals in the control group.²⁵

Results of studies also suggest that the effect of cognitive behaviour therapy may be long lasting and it has been shown that individuals undergoing this type of treatment with high levels of anxiety and depression prior to the treatment tend to be less depressed and less anxious approximately 2 years after their injury in comparison with a control group.²⁶ The data suggests, therefore, that cognitive behaviour therapy not only acts as an effective short term treatment but also a long term treatment in those individuals who have mood disturbance following SCI. Other areas of an individual's life have also been shown to respond positively to the provision of cognitive behaviour therapy in this area.²⁷ This indicates that psychological therapy can be effective not only in helping people adjust to SCI but also in terms of enhancing their life style.

The data would suggest that both individual and group treatments may be effective for people with SCI and this could be extended not only to problems with anxiety and depression but also to difficulties with sexual adjustment, social adjustment, cognitive difficulties as well as a social skills approach in the area of assertiveness and anger control.

Summary and conclusions

Whilst many individuals who have suffered a spinal cord injury adjust to the changes imposed by that injury on their life, data suggests a need to direct research towards other life domains designed to improve the quality of life in these areas. One particular study, for example, suggests that in addition to positive changes there is potentially a decrease in well being in individuals with spinal cord injury over a

9 year period.²⁰ The areas needing further research and attention are in the areas of depression and anxiety, suicide, physical complications and self-neglect, pain, social discrimination and therapies for improving adjustment.

Interesting and innovative research in the area of psychological treatment (cognitive behaviour therapy) suggests that it can enhance adjustment to spinal cord injury and potentially 'immunise' individuals against disruption in mood.²⁵⁻²⁷ Further research may help us to understand how best to deliver psychological therapy to individuals with SCI and also inform us as to the optimum timings of such interventions.

The psychological consequences of spinal cord injury not only include difficulties with mood but may also extend to an impact on cognitive function which in turn may have an adverse effect on an individual's ability to cope successfully with rehabilitation. Psychological research and intervention must therefore be aimed in the broadest sense at an individual helping them to adjust in a variety of different areas of their life.

We must not forget however that spinal cord injury has an impact on the family of the individual as well,⁸²⁻⁸⁴ and also on the staff who care for them.^{97,98} If we are to provide successful rehabilitation for individuals following spinal cord injury then all of these factors must be taken into account in designing future research studies and areas for psychological therapy.

Whilst the research literature looking at the psychological effects of spinal cord injury continues to grow and develop, we still have a long way to go before we are able to describe the global psychosocial effects of this type of injury on the patient, their family and the staff who care for them in their rehabilitation period and in their life afterwards.

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