

ORIGINAL ARTICLES

**QUALITY OF LIFE FOLLOWING SPINAL CORD INJURY FOR 20-40
YEAR OLD MALES LIVING IN SRI LANKA**

Paul Chappell, Sheila Wirz*

ABSTRACT

This study aimed to find out the quality of life achieved by 20-40 year old males living in Sri Lanka who have either received rehabilitation or have not following spinal cord injury.

The study used both quantitative and qualitative methods to answer the research question. Data was collected by using a questionnaire within semi-structured interviews with 20 SCI males, who were living independently throughout Sri Lanka. As one of the researchers has a SCI, it allowed for a closer relationship to develop with the sample, bringing a richer experience to the research project.

The findings indicate that those who received rehabilitation, had a statistically lower incidence of health complications following discharge. Although no statistically significant results were found in terms of psychosocial and economical well being, the qualitative data revealed those who received rehabilitation had a more positive and realistic outlook on life.

Although the quality of life for those who received rehabilitation is somewhat better, the study highlighted that other extrinsic factors such as, individual self-esteem and lack of community support, could affect the quality of life achieved by those with spinal cord injury in Sri Lanka.

INTRODUCTION

Having a spinal cord injury (SCI) can be a devastating and at times life-threatening event. According to the WHO (1), between 20-40 people per million of population will acquire a spinal injury each year. In contrast however, information gathered in Sri Lanka found a minimum of 66.7 per million of population incur a SCI, which is 67% higher than the WHO estimates (2).

As a result of SCI, important changes occur within an individual's physical and psychosocial relationship with their environment (3). Some of these changes involve the loss of motor and sensory function, inability to control bladder or bowel function and vitiated sexual functioning.

In respect to these changes, they are likely to have profound effects on an individual's social role and interpersonal relationships within their community.

In Sri Lanka individuals are usually transferred to one of the 506 general hospitals in the country for initial treatment and then discharged without any rehabilitation. Figures from the only spinal injuries unit in Sri Lanka (Ragama Rehabilitation Hospital, in fact reveal that only 5% of the national total of spinal injury cases in the whole of the country receives rehabilitation (2).

THEORETICAL CONCEPTS OF QUALITY OF LIFE

The concept, quality of life has been widely studied from both a research and theoretical perspective since shortly after the First World War. Luria (4) in a historical review, reports of studies conducted by neurologists, who examined cortical function and well being of soldiers during the First World War. Over the past two decades however, it has increasingly become a key outcome measure for many health care systems in the Western world e.g. QALYS and DALYS (5, 6). Tam (7) believes this is a result of the growing recognition that individual well being is just as important in treatment as are cure and sustainment of life.

As a theoretical concept, quality of life is a complex and dynamic phenomenon that has no simple, single definition (see Table 1). The reason for this complexity is that much confusion abounds over what is actually meant by the term, 'quality of life.'

Table1: Examples of definitions of quality of life from the literature

AUTHOR	DEFINITION
Young and Longman (8)	'Satisfaction of needs in the physical, psychological and social structural realms'
Goodison and Singleton (9)	'The fulfillment of life plans'
Dijkers (10)	'The sum total of desirable possessions, statuses and traits such as a good job and good health'
Tam (7)	'Individual well being'
Duggan and Dijkers (11)	'A reaction to the (lack of) congruence between aspirations and accomplishments as perceived by the person involved'

Earlier work on quality of life was very much focused on social and objective external factors such as education, income and housing (12,13,14). However, researchers have suggested that qualitative measures would provide a more direct indicator of individual quality of life (11).

Qualitative measures refer to an individual's subjective understanding of quality of life and include indicators such as 'happiness', 'life satisfaction' and 'well being'. These indicators depend predominantly on the direct experience of an individual's life and how they perceive it and need to be measured qualitatively. Day and Jankey (14) cite that the above indicators have been found to account for over 50% of the variance in quality of life for people with disabilities. In analysing this statement, quality of life is perceived to be more of a psychological experience that may not necessarily correspond to external indicators.

Interestingly a study conducted by Fuhrer et al (15) found that there was no significant correlation between life satisfaction and extent of paralysis. However, life satisfaction appeared to be associated with issues of social integration, mobility and locus of control.

From this study it appears that in relation to SCI both objective and qualitative elements of a person's life need to be addressed in the assessment of quality of life. As appositely stated by Tartar et al (16), quality of life is 'a multi-faceted construct that encompasses the individual's behavioural and cognitive capacities, emotional well being and abilities requiring the performance of domestic, vocational and social roles' (12). Quality of life is therefore a dynamic concept that not only incorporates physical, psychological and social domains, but individual perceptions and values of their role function.

THE DISABILITY PARADOX

Bowling (17) defines quality of life as "a concept representing individual responses to the physical, mental and social effects of illness on daily living, which influences the extent to which personal satisfaction with life circumstances can be achieved". The widespread view of a good quality of life is usually based on the idea of good health and experiencing personal well being and life satisfaction e.g. independence, fitness, status and respect.

In accepting the above notion, it could be argued that people with disabilities are therefore incapable of experiencing a good quality of life. For example, in the milieu of a biomedical model of disability, Kasonde-Ng'andu (18) points out that one of the underlying values is that disability is perceived to be a 'sickness', 'personal tragedy' and 'object of charity'. From these perceptions, further assumptions are made by both health professionals and society in general about people with disabilities in the majority world. For instance they are assumed to be limited in function and role performance (19) and as a result are often underprivileged and ostracised from local communities.

Empirical evidence however, suggests a paradoxical relationship occurring. For example, in relation to individuals with SCI, Devivo and Richards (20) found that individuals reintegrating back into the community reported high levels of quality of life. Siosteen et al (21) who studied 56 individuals with SCI in Sweden, also found that involvement in social activity

correlated well with levels of mental well being and quality of life, outweighing levels of physical dysfunction.

On reflection of this evidence, it can be seen that there are other psychosocial factors that may contribute to a spinally injured individual's quality of life, besides functional capacity. Clayton and Chubon (22) for example, found in a sample of 100 persons with spinal injury, that education was associated with perceived life quality. Not only does education increase access to work and economic resources, according to Albrecht and Devlieger (19), it also increases a sense of control over life of a person with disabilities and creates opportunities for social relationships to emerge.

Correspondingly, social support and community acceptance can also influence the inherent balance and well being of individuals with spinal cord injury. Although social support is known to act as a buffer against anxiety and depression amongst the spinal injury population (23), it has also been found to be a significant variable in the adjustment to disability. In a study on the long-term adjustment to disability amongst 100 middle-aged individuals with spinal injury, Schulz and Decker (24) found that those who were satisfied with their social contacts and who felt in control, reported increased levels of personal satisfaction.

QUALITY OF LIFE AND REHABILITATION

As a result of the changing social and political emphasis on disability, the evolving field of spinal injury rehabilitation does not only now focus upon functional outcomes, but also incorporates the emergent themes of independent living and psychological well being. As highlighted by Inman (25), the aims of spinal cord injury rehabilitation include 'optimising physical function, facilitating social independence, minimising medical complications, enhancing emotional adaptation and promoting reintegration into the community'. In view of this, it can be said that enhancing quality of life is the ultimate goal of spinal injury rehabilitation practice.

In addition, it is thought that through incorporating the theme of independent living into SCI rehabilitation, it will inevitably make individuals more aware of the social barriers that may limit their quality of life. This was made evident in a cohort study conducted by Smith (26), which compared the efficacy of specialist and non-specialist management of SCI amongst a sample of 800 people. The results found in relation to life satisfaction compared with individuals receiving non-specialist rehabilitation, a large proportion of those receiving spinal injury rehabilitation reported access to be a major limitation within society. Such a difference raises the point, that the expectations of those who have more access to information through specialist rehabilitation, are higher than those who do not know they have such social opportunities available.

Smith's (26) study also highlights other benefits of receiving specialised rehabilitation following SCI, compared to non-specialist centres. For example, in terms of health there was a significantly lower incidence of complications such as urinary tract infections, chest infections and pressure sores amongst the spinal injury rehabilitation cohort. Furthermore, the study indicated positive social outcomes for the spinal injury rehabilitation cohort, in relation to levels of paid employment, participation in leisure activities and satisfaction with sex.

Despite this being the only study that compares the outcomes of those who have had specialised spinal injury rehabilitation to those who have not, it provides substantial statistical evidence that individuals who have access to spinal injury rehabilitation, have improved health, psychological and social outcomes.

In acknowledgement of the long-term benefits of spinal injury rehabilitation and the small numbers of individuals that receive rehabilitation in Sri Lanka, this study was conducted to see if there is a difference in the quality of life achieved by those who had rehabilitation as compared to those who did not.

RESEARCH AIM

To determine the quality of life achieved by 20-40 year old males living in Sri Lanka, who have either received rehabilitation or have not, after spinal cord injury.

RESEARCH OBJECTIVES

- To identify the information individuals with a spinal cord injury receive during rehabilitation in Sri Lanka.
- To identify the quality of life achieved by those individuals with a spinal cord injury, who have received rehabilitation in Sri Lanka.
- To identify the quality of life achieved by those individuals with a spinal cord injury, who have not had rehabilitation in Sri Lanka.
- To compare the quality of life achieved by those individuals with a spinal cord injury, who have had rehabilitation as compared to those who have not in Sri Lanka.

RESEARCH METHOD

Research into quality of life for individuals with SCI in Sri Lanka or Southeast Asia is limited, therefore, a combined method, which draws upon both quantitative and qualitative paradigms, was used. Through using a combined method it meant that both the objective and qualitative assessment of individual quality of life, would be incorporated within the study.

The research measures used within the study included a semi-structured questionnaire within a semi-structured interview schedule. The questionnaire was made up of both, open and

closed questions and was broken down into seven main sections. However, this was only done for analysis purpose and not for the interviewee.

Within the first two sections of the questionnaire, closed questions were used to collect demographic details of the study population i.e. age, marital status, family set up and level of education. Sections 3 and 4 concentrated on details of individual's injury such as level of injury and issues relating to spinal cord injury rehabilitation and education. The last four sections used both, a mixture of open and closed questions to determine individual physical, emotional and social well being.

In order to check the validity and suitability of the question format in the questionnaire and interview schedule, key informants' comments were sought on early drafts of the research measures used. The key informants used within the study, included the president and vice-chairman of the Spinal Injury Association in Sri Lanka (SIASL), who are both spinally injured and 2 expatriates working for an INGO, who have experience of working with SCI individuals in Sri Lanka.

The data collated from the closed questions in the questionnaire, were analysed through using both EPI Info and SPSS. In order to identify any significant relationships between the quality of life achieved by those participants who had received rehabilitation compared to those who had not, chi-square was used. Likewise, the data collected from the open questions and interview transcripts were analysed by examining key issues, concepts and themes. By doing so, it allowed for a thematic framework to be developed. To enhance the reliability of the key themes identified, a couple of interview transcripts were given to a Sinhalese speaker to analyse.

After contacting SIASL, written consent was gained from them to contact individuals with SCI, in both Colombo and Ragama. Likewise, verbal consent was also gained from the CBR projects in Tangalle and Kandy. All 4 regions made sure they contacted individuals with SCI from a variety of settings. Time was also spent familiarising 3 translators with the structure of the questionnaire and interview schedule. Each interview took on average 45 minutes to complete and were both audio-taped and later fully transcribed. At the end of each interview, the interviewee was given the opportunity to ask any questions and time was also spent with the translator to crosscheck the data gathered.

The study population consisted of 20 participants. The participants were taken from a list of those registered as having a spinal injury, from the main hospital in Colombo and those known to the SIASL and CBR projects in Tangalle and Kandy. The subject criterion entailed that all participants were male, between the ages of 20-40, with a spinal cord injury and are currently living independently in the community, following initial hospital treatment.

In terms of ethical considerations, ethical approval was gained from the ethics committee at CICH. To protect individual rights, verbal or written consent was gained from each participant after it was explained that at no time would any personal information be disclosed to any other person or organisation. Furthermore, as the study was dealing with a potentially sensitive issue, the address and telephone number of the SIASL who offer a counselling service, was left with each participant.

RESULTS

Demographic Characteristics of Study Population

Table 2: Age Range Of Study Population (N=20)

AGE IN YEARS	FREQUENCY (N)
20-2	4
25-29	4
30-34	2
35-40	10
Total	20
Missing	

The study population consisted of 20 participants, 11 of whom had received spinal injury rehabilitation and 9 who had not. The ages ranged between 20-40 years with the majority being between the ages of 35-40 (see Table 2). A greater number of the participants were married and lived in a nuclear family structure.

Nature of injury and disability

Within the study 90% of the participants were paraplegic with a median of 2.00. The time since injury ranged between 1 to over 10 years, with the majority of participants being injured between 1-4 years (see Table 3).

Table 3: Age range of study population (N=20)

AGE IN YEARS	FREQUENCY (N)
20-2	4
25-29	4
30-34	2
35-40	10
Total	20
Missing	

Table 4: Cause of injury (N=20)

The most frequent cause of injury amongst the study population was due to road traffic accidents (RTA), followed closely by falls from trees (see Table 4).

CAUSE OF INJURY	FREQUENCY (N)
RTA	7
Fall/Tree	5
Assault	3
Sports	2
Occupational	1
Other	2
Total	20
Missing	

Rehabilitation and activities of daily living

The majority of those who had received rehabilitation were given education about managing their urine ($X^2 p=0.653$). Likewise, they were also given education on bowel management ($X^2 p=0.02^*$).

Furthermore, the majority of those who had received rehabilitation had been given information about preventing pressure sores ($X^2 p=0.02^*$, see Table 5). Interestingly, out of the participants who had received rehabilitation and information about pressure sores, none of them had a sore within the last year ($X^2 p=0.001^{**}$, see Table 6).

Table 5: Given information about pressure sore prevention (N=20, $X^2 p=0.02^*$)

	Pressure Sore Information		
	Yes	No	Total
Received Rehabilitation	10	1	11
Yes			
No	3	6	9
Total	13	7	20

Table 6: Pressure sores within last year (N=20, $X^2 p=0.001^{}$)**

	Pressure Sores in Last Year		
	Yes	No	Total
Received Rehabilitation	10	1	11
Yes			
No	3	6	9
Total	13	7	20

Table 7: Received information on sexual function and fertility (N=20, X² p=0.02*)

In terms of sexual function and fertility, none of the participants who had no rehabilitation were given information (X² p=0.02*, see Table 7). Likewise, none of them had received information on coping, after injury (X² p=0.001**, see Table 8).

Information on Sexual Function			
	Yes	No	Total
Received Rehabilitation	6	5	11
Yes			
No	-	9	9
Total	6	14	20

Table 8: Received information on coping after injury (N=20, X² p=0.001)**

Information on Coping			
	Yes	No	Total
Received Rehabilitation	8	3	11
Yes			
No	-	9	9
Total	8	12	20

PHYSICAL, SOCIAL AND EMOTIONAL WELL BEING

The majority of those who had both received and not received rehabilitation, reported that their health as compared to when first injured, was good (X² p=0.543). However, in relation to life control compared to before their injury, more of those who received rehabilitation reported it to be good, or no different (X² p=0.415).

Although both groups reported no difference in family relationships compared to before injury, the majority of those who received rehabilitation reported that their social life with friends compared to before injury was good or no different. However most of those who had no rehabilitation though it was now worse (X² p=0.257). Furthermore, in terms of involvement in community activities both groups reported it to be worse now as compared to before they were injured (X² p=0.790).

INCOME GENERATION

Before their injury, the majority of the study population was employed and mostly doing manual work. However, one of the participants was a full time university student. In terms

of employment after injury, although more individuals who received rehabilitation were employed, compared to the non-rehabilitation group, the majority of the sample were still not involved in employment ($X^2 p=0.194$, see Table 9).

Table 9: Employment after injury (N=20, $X^2 p=0.194$)

	Employers after injury		
	Yes	No	Total
Received Rehabilitation	4	7	11
Yes			
No	1	8	9
Total	5	15	20

Interestingly however, the majority of those who had received rehabilitation and were not employed had plans for future income generation activities ($X^2 p=0.147$).

DISCUSSION

Rehabilitation Issues

The results revealed that the majority of those who had received rehabilitation had been given adequate information about managing urine, bowels and pressure sores. However, although some of those who have had no rehabilitation received limited information on urine management and pressure sores, it would appear that the information they received, was inadequate. This for example, is made evident by the fact that all those who received information during rehabilitation about pressure sores, reported having no sores within the last year.

Similar results were also found in a study conducted by Smith (26) who studied 800 individuals who had either been through a spinal injury unit or a non-specialised unit in the UK. It was found that those who had been through the spinal injury unit (702), reported a statistically significant lower incidence of pressure sores in the last year, than those who attended a non-specialised unit. This suggests, that the training given in specialised spinal injury rehabilitation is both longer and more comprehensive.

It was also clear from the results, that none of the non-rehabilitation sample had received information on sexual function, fertility or coping following injury. This may indicate a lack of knowledge, or inabilities in interpersonal skills that the Sri Lankan medical staff may have in dealing with such specialised issues.

For instance, in relation to information on coping, King and Kennedy (3) found in a case control study with 38 spinally injured individuals, that those who followed coping effectiveness training during rehabilitation, reported significant psychological adjustment to their injury six weeks after discharge. This shows that although changes have occurred in the individual's understanding of their injury, they will have also gained the coping skills necessary, to continue living consequential lives. For example, in the current study in terms of income generation, those who had received information on coping during rehabilitation were either employed, or had realistic plans for future income generating activities. However, in critical analysis of this notion it is also possible that other confounding variables that were not accounted for, such as, personality and religious beliefs, may also affect individual coping skills following injury.

PHYSICAL, SOCIAL AND EMOTIONAL WELL BEING

Compared to the previous section, no statistically significant findings were found in the quantitative data relating to individual well being. Although this may be linked to the small sample used, it may also be due to the fact that unlike the previous section, which used tighter parameters in gathering information, this section had a wider choice of answers that could be selected. However, in combining the quantitative data with the qualitative themes that emerged, some interesting similarities were found.

For instance, within the quantitative data, it appears that the majority of those who received rehabilitation reported their relationship with friends to be good or no different. However, a majority of the non-rehabilitation sample reported it to be worse. This apparent discrepancy is supported by the qualitative results. For example, many of those who had no rehabilitation frequently reported that their friends did not visit, which they perceived was related to their disability.

According to Whiteneck et al (27), losing friends after injury can produce greater social isolation, than isolation from lack of access to other environmental resources. Therefore, it is put forward that interdependence as found amongst those who received rehabilitation, is a more relevant construct than independence, especially in terms of promoting adjustment and community reintegration for individuals with SCI.

According to the quantitative data, involvement in community activities amongst the study population was worse for both, those who had received rehabilitation and those who had not. These findings coincide with Stambrook et al (28) who believe that individuals with SCI are often perceived as being less socially engaging and less active socially. One of the reasons for this analogy, is that these individuals face many social barriers when reintegrating into the community, such as, transport difficulties and inaccessible buildings. In analysing the qualitative data numerous themes emerged, which reiterate this point.

For instance, although the majority of those who received rehabilitation reported positive societal attitudes towards them, those who had no rehabilitation, perceived societal attitudes to be quite negative, believing that no one was interested in helping them now. Given Sri Lanka's current civil unrest, it was also interesting to note that none of the individuals who were injured in military service mentioned whether this had a positive or negative effect on societal attitudes. Craig et al (29) point out, that demands of others who lack understanding of SCI or who interact unnaturally i.e. avoidance of people with disabilities may not only increase levels of depression, but maladjustment to living in the local community for spinally injured individuals. From this it is suggested, that the longer misunderstanding towards individuals with SCI abound, the less likely they are, to participate in community activities.

However, in critical analysis of this it is thought that there are other variables, such as self-esteem, which may actually bias the individual's perception or opinion of the community around them. For example, findings from Craig et al's (29) study of 41 spinally injured individuals, found that in comparison to an able-bodied control group, spinal injury affected individual self-esteem, which lead to feelings of helplessness and fatalism.

INCOME GENERATION

In terms of employment, it was not surprising to find that more individuals who had received rehabilitation were now employed, in comparison to those who had no rehabilitation. However, the actual overall numbers of those employed was low. Furthermore, those who had received rehabilitation and were not employed, all had realistic plans for future income generating activities.

These findings coincide with other studies that looked at the quality of life of long-term spinally injured individuals. For example, Harrison and Kuric (30) found in their study of 62 individuals with a spinal injury, that only 8% were employed following injury, compared with 39% prior to injury. This suggests that there are other variables that affect the number of people taking up employment following injury, such as, access to places of work, employers attitudes and more importantly, the individual's belief in their abilities.

What does the future hold?

As regards 'the future', the study population were asked as to what they could see themselves doing in 5 years from now. Through analysing the interview transcripts, a table was constructed with all the themes and the frequency with which each theme was reported and were recorded e.g. frequent, not frequent or nothing (Table 10).

Table 10: Summary of what sample propose to do in 5 years

Theme	Examples of Quotations	Rehab	No rehab]
Business Plans	'Maybe go ahead and start some business activities' R09, p.4 'Engage in business activities.' R10, p.4' To go into the food business.' N03, p.4	F	NF
Independence	'To rebuild my life more and more towards independence' R08, p.5 'I want to be making as independent as possible' R15, p.4	F	NF
To Walk	'I want to get up' N02, p.4 'My only hope is that I will be able to walk' N08, p.5 'My only plan is to go to the USA or UK for the stem cell implant operation' R12, p.5	NF	F
No Plans	<i>'I don't have any plans' N06, p.4</i> <i>'I've never really thought of 5 years ahead, I only think of tomorrow' N09, p.4</i>	NF	F
Educate Children	'To educate my children' R10, p.4	NF	N
Marriage	'To marry, if all goes well marriage' R13, p.5	NF	N
Improve Health	'I would like to be in better health condition' R13, p.5	NF	N

Key: F= Frequent; NF= Not Frequent; N= Nothing

From analysing the table it can clearly be seen that overall those who have received rehabilitation appear to have more realistic goals and ambitions compared to those who had no rehabilitation. This suggests that the wealth of information received during rehabilitation

encourages the individual to think about their future once discharged from the spinal unit. Although the rehabilitation group as a whole were more realistic as regards the future, whether or not these goals and ambitions are achievable will ultimately depend upon themselves and the social structure of their community.

STUDY LIMITATIONS

A limitation identified within the study was working through translators. Although overall they were good, some of the translators at times had a tendency to summarise the participant's response in their own words, thus introducing bias to the results. This could have been overcome by having local Sinhalese spinally injured individuals carry out the interviews, which would have allowed a closer and more natural relationship to develop between researcher and subjects allowing for a greater insight into quality of life following spinal cord injury in Sri Lanka.

Furthermore, as the researcher has a SCI and came from overseas, there was a potential for researcher bias being introduced to the findings. This is mainly due to the fact that coming from a country where facilities for those with SCI are markedly better than in Sri Lanka, the researcher may have entered the study with their own expectations of how things should be.

CONCLUSION

Despite the small sample and the drawbacks identified in this study, this research provides valuable insight into the quality of life for individuals following SCI living in Sri Lanka. More importantly it has highlighted the overall benefits of having specialised spinal injury rehabilitation in terms of health, physical function and psychosocial integration. However, it is important to remember that there are other confounding variables other than receiving rehabilitation, such as self-esteem and low social support that can affect individual well being and life satisfaction. For example, it could be put forward that although an individual has received rehabilitation, they may have a low self-esteem, which causes them to view their life situation negatively.

In respect of this, to fully reap the benefits of rehabilitation, more support needs to be given to individuals once they are discharged from hospital in terms of both reintegrating into the community and in the achievement of their goals and ambitions, thus helping to improve their overall life satisfaction.

* Address for correspondence
1 Frobishesr Rd, Rugby,
Warwickshire, UK
Email: pichappell@hotmail.com

REFERENCES

1. WHO. *World Health Report*. Geneva. 1997.
2. Motivation *National Plan for Spinal Cord Injury Rehabilitation in Sri Lanka*. Concept Paper (unpublished) 1999.
3. King C, Kennedy P. *Coping Effectiveness Training For People with Spinal Cord Injury: preliminary results of a controlled trial*. British Journal of Clinical Psychology 1999; Vol. 38: pp.5-14.
4. Luria AR. *The Working Brain: an introduction to neuropsychology*. Penguin: London 1973.
5. Johannesson M. *QALYs, HYEs and Individual Preferences: a graphical illustration*. Social Science and Medicine 1994; 39(12): pp.1623-1632.
6. Homedes N. *The Disability - adjusted life year (DALY) definition, measurement and potential use*. Working Paper: World Bank, 2000.
7. Tam SF. *Quality of Life: Ytheory and Methodology*. International Journal of Rehabilitation Research 1998; Vol. 21: pp.365-374.
8. Young KJ, Longman, A.J. *Quality of Life and Persons with Melanoma: a pilot study*. Cancer Nursing 1983; 6: 219-225.
9. Goodinson SM, Singleton J. *Quality of Life: a critical review of current concepts, measures and their clinical implications*. International Journal of Nursing Studies 1989; 26 (4): 327-341.
10. Dijkers N. *Subjective Quality of Life After SCI: a meta-analysis of the effects of disablement components*. Spinal Cord 1997; 35 (12):829-840.
11. Duggan CH, Dijkers N. *Quality of Life - Peaks and Valleys: a qualitative analysis of the narratives of persons with spinal cord injuries*. Canadian Journal of Rehabilitation 1999; Vol. 12(3): pp.81-191.
12. Allison PJ, Locker D, Feine JS. *Quality of Life; a dynamic construct*. Social Science and Medicine 1997; 45(2): pp.221-230.
13. Meeberg G. *Quality of Life: a concept analysis*. Journal of Advanced Nursing 1993; Vol. 18: pp.32-38.
14. Day H, Jankey S. *Lessons From the Literature: toward a holistic model of quality of life*. In: Renwick R, Brown I, Nagler M. (Eds.) *Quality of Life in Health Promotion and Rehabilitation* Sage: London, 1996.

15. Fuhrer M, Rintala D, Hart K, Clearman R, Young M. ***Relationship of Life Satisfaction to Impairment, Disability and Handicap among Persons with Spinal Cord Injury Living in the Community.*** Archives of Physical Medicine and Rehabilitation 1992; Vol. 73: pp.552-557.
16. Tarter et al. ***The Quality of life following liver transplantation: a preliminary report*** Gastroenterology Clinics of North America 1988;17(1):207-217.
17. Bowling A. ***Measuring Quality of Life Open University:*** Milton Keynes. 1997.
18. Kasonde-Ng'andou S. ***Bio-Medical versus Indigenous Approaches to Disability.*** In: Holzer B, Vreede A, Weigt G. (Eds.). Disability in Different Cultures: Reflections on Local Concepts Deutsche Biblotek: Bielefeld. 1999.
19. Albrecht G, Devlieger P. ***The Disability Paradox: high quality of life against all odds Social Science and Medicine.*** 1999; Vol 48: pp.977-988.
20. DeVivo M, Richards J. ***Community Re-integration and Quality of Life Following Spinal Cord Injury.*** Paraplegia. 1992; Vol. 30: pp.108-112.
21. Siosteen A, Lundqvist C, Blomstrand C, Sullivan L, Sullivan M. ***The quality of life of three functional spinal cord injury subgroups in a Swedish community.*** Paraplegia. 1990; Vol. 28(8): pp.476-488.
22. Clayton K, Chubon R. ***Factors Associated With The Quality of Life of Long Term Spinal Cord Injured Persons.*** Archives of Physical Medicine and Rehabilitation. 1994; Vol. 75: pp.633-639.
23. Kennedy P, Lowe R, Grey N, Short E. ***Traumatic Spinal Cord Injury and Psychological Impact: a cross-sectional analysis of coping strategies.*** British Journal of Clinical Psychology. 1995; Vol. 34: pp.627-639
24. Schulz R, Decker S. ***Long Term Adjustment to Physical Disability: the role of social support, perceived control and self-blame.*** Journal of Personality and Social Psychology. 1985; Vol. 48(5): pp.1162-1172.
25. Inman C. ***The Effectiveness of Spinal Injury Rehabilitation.*** Clinical Rehabilitation. 1999; Vol. 13 (1): pp.25-31.
26. Smith M. ***Making the Difference.*** Spinal Injuries Association: London. 1999.
27. Whiteneck G, Tate D, Charlifue S. ***Predicting Community Reintegration After Spinal Cord Injury From Demographic and Injury Characteristics.*** Archives of Physical Medicine and Rehabilitation. 1999; Vol. 80: pp.1485-1491.

28. Stambrook M, MacBeath S, Moore A, Peters L, Zubek E, Friesen J. *Social role functioning following spinal cord injury*. Paraplegia. 1991; Vol. 29: pp.318-323.
29. Craig A R, Hancock K, Chang E. *The Influence of Spinal Cord Injury on Coping Styles and Self-Perceptions Two Years After the Injury*. Australian and New Zealand Journal of Psychiatry. 1994; Vol. 28: pp.307-312.
30. Harrison C, Kuric J. *Community reintegration of SCI persons: problems and perceptions*. Spinal Cord Injury Nursing. 1989; Vol. 6(3): pp.44-47.

LIFE AFTER INJURY

A rehabilitation manual for the injured and their helpers

Authors: Liz Hobbs, Susan McDonough, Ann O'Callaghan

This is a practical handbook for carers and different levels of personnel involved in caring for of people injured as a result of accidents, landmines or armed conflict. It covers a wide range of problems and needs, from the event of the injury, through emergency care, hospitalisation (when possible), learning to do daily activities and finally reintegration into the community. The book also deals with low cost, appropriate technology, splints and aids, training, teamwork and community education.

Price: US\$10 ('South'), US\$30 ('North'), plus postage.

Available from: Third World Network, 121-S Jalan Utama, 10450, Penang, Malaysia.
Email: twnet@po.jaring.my