

ORIGINAL ARTICLE

A comparative review of life satisfaction, quality of life and mood between Chinese and British people with tetraplegia

L Songhuai¹, L Olver², L Jianjun¹, P Kennedy^{2,3}, L Genlin¹, J Duff² and U Scott-Wilson²

¹Department of Clinical Psychology, China Rehabilitation Research Centre, Beijing, China; ²Department of Clinical Psychology, National Spinal Injuries Centre, Stoke Mandeville Hospital, Buckinghamshire, UK and ³Oxford Doctoral Course in Clinical Psychology, Oxford University, Oxford, UK

Study design: Cross-sectional; questionnaire.

Objective: To compare the differences in life satisfaction, quality, value and meaning of life, and mood between Chinese and British people with tetraplegia after the completion of rehabilitation. This study was undertaken at the China Rehabilitation Research Centre, Beijing, China and the National Spinal Injuries Centre, Stoke Mandeville Hospital, United Kingdom.

Method: Self-report questionnaires were completed by 44 people with tetraplegia; 22 from China and 22 from the United Kingdom. The results of life satisfaction, quality, value and meaning of life, anxiety and depression were analysed.

Results: The British group were significantly more satisfied than the Chinese group with their vocational situation, their financial situation and their family life. The British group was more positive than the Chinese group towards the value they placed on their life and had lower mood scores. No significant differences were identified between the two groups in life as a whole, self-care, leisure situation, sexual life, partnership relations, contact with friends, meaning of life and quality of life.

Conclusion: To improve the value placed on life by people with tetraplegia in China, a future emphasis of rehabilitation should include addressing vocational, financial and family-life issues.

Spinal Cord (2009) 47, 82–86; doi:10.1038/sc.2008.83; published online 24 June 2008

Keywords: spinal cord injury; tetraplegia; life satisfaction; quality of life; mood

Introduction

Quality of life (QOL) is a multidimensional concept defined as one's perceptions of their life situation in relation to their culture and values,¹ including domains of living standards, well-being, economic self-sufficiency and accommodation. On the other hand, life satisfaction is a more specific concept defined as an individual's personal evaluation of his or her life.² One may perceive their QOL as similar to one's compatriots and yet may still feel dissatisfied with this life situation. Interestingly, it has been reported that one's level of life satisfaction can be influenced by one's country of residence. For example, Americans have a higher level of life satisfaction compared to Thai,³ Chinese and Korean students.⁴

A spinal cord injury (SCI) presents a significant challenge to one's QOL, life satisfaction and mood, and research shows this effect is mediated by country of residence. A study investigating QOL shows Swedish people with SCI had a

similar self-reported QOL to that before their injury.⁵ In contrast, people with SCI in Afghanistan rated their QOL as significantly lower than their neighbours of the same age and sex.⁶ With regards to life satisfaction, a direct comparison between Chinese and American people with SCI showed significantly lower life satisfaction scores for the Chinese compared to Americans.² Relating to mood, it has been demonstrated that a group of people with SCI from Hong Kong had relatively high depression levels (according to the Beck Depression Inventory) in proportion to suggested cut-off values from Australia.⁷ The literature therefore suggests that people with SCI in countries with a developing economy have lower QOL and life satisfaction scores, and higher depression scores, compared to countries with a developed economy.

Diener *et al.*⁴ propose that the underlying factor for such patterns revolves around cultural differences between countries. For example, a correlation was found to be stronger between life satisfaction and satisfaction with self in individualistic cultures (for example USA) and found to be weaker in collectivist cultures (for example Korea).⁸ Hampton and Marshall² also found American people with SCI differed from Chinese in the facets that correlated with their

Correspondence: Professor P Kennedy, Department of Clinical Psychology, National Spinal Injuries Centre, Stoke Mandeville Hospital, Bucks Hospital NHS Trust, Mandeville Road, Aylesbury, Buckinghamshire, HP21 8AL UK.
E-mail: paul.kennedy@hmc.ox.ac.uk
Received 20 December 2007; revised 21 May 2008; accepted 25 May 2008; published online 24 June 2008

level of life satisfaction. Furthermore, some specific cultural differences, such as traditional beliefs surrounding disability, may affect people with SCI's appraisal of their new situation. For example, a traditional view of disability in China is of uselessness, non-productivity and dependency⁷ and Turkish tradition perceives disability to be sent from God and that the patient should be treated as a baby.⁹ Consequently, although SCI may result in similar challenges to patients worldwide, the culture that one resides in as a disabled person will differentially influence one's life satisfaction, QOL and mood.

Another factor influencing different levels of life satisfaction, QOL and mood for people with SCI is the prevalent gap that exists in the standards of SCI rehabilitation provided by health care systems between countries. Overall Functional independence measure motor scores for people with SCI in Hong Kong are significantly lower than people with SCI in America.¹⁰ Similarly, a higher mortality rate is found for people with SCI in the first year post-injury in countries with a developing economy, for example Zimbabwe¹¹ compared to America.¹² Although one contributing factor to this may be differing injury characteristics across countries, Decoinck⁶ proposed that the weaker health care system present in countries with developing economies accounts for a lot. Evidence for this can be seen in the delay and extended length of hospitalization in countries with developing economies, the lower rate of post-injury employment and the increased prevalence of secondary complications, for example urinary tract infections and pressure sores.⁷ This demonstrates the existence of a gap in the standards of rehabilitation for people with SCI between countries with developing and developed economies. An increase in the life expectancy of people with SCI over the past 30 years in countries with developed economies¹³ has initiated a shift in the aims of SCI rehabilitation, from extending lifespan and reducing mortality towards improving areas of life that influence peoples' life satisfaction, QOL and mood. However, the focus of SCI rehabilitation in countries with developing economies has yet to shift from physical issues towards psychological issues. Only 11% of Nigerians suffering from mood disorder at a diagnosable level receive treatment,¹⁴ thus demonstrating an inability for mental health services of some countries with developing economies to meet the psychological needs of the population. SCI rehabilitation in countries with developing economies remains primarily focused on extending lifespan and reducing mortality, and consequently factors influencing life satisfaction, QOL and mood are not being addressed to the same level as countries with more developed economies.

Within the system of modern comprehensive rehabilitation that includes physical, psychological and vocational aspects of the service, it is possible to help the patients be integrated into the family and society. China's modern rehabilitation has existed for around 20 years in serving the spinal cord injured. However, the gap of standards of the service remains between China and countries with more developed economies. The biggest gap exists in tetraplegia where the SCI has the most significant impairment. Severe loss of motor functions of people with tetraplegia has not

only changed their physical life but also caused immense psychological trauma. The current study aims to investigate the difference in the psychological adjustment of people with tetraplegia between China as a model for countries with developing economies and United Kingdom for countries with developed economies. The study was carried out by the China Rehabilitation Research Centre, Beijing, China and the National Spinal Injuries Centre (NSIC), Stoke Mandeville Hospital, United Kingdom.

Materials and methods

Participants

A total of 44 participants were included in the study, with half from China and half from the United Kingdom. Both the Chinese and UK samples were convenience samples. For each subgroup 19 of the 22 participants were men and three were women. The age range at injury was 17–57 years with a mean of 34 years (s.d. \pm 9.66) in the Chinese sample whereas 16–59 years with a mean of 32.6 years (s.d. \pm 10.79) in the British sample. The time lapse from injury to study was 3–5 years in both samples. Patients with Frankel Scale A, B and C were selected in both samples and all participants had cervical injuries rendering them tetraplegic. There was no difference of statistical significance between the samples ($P > 0.05$). The causes of injury were road traffic accident in 23 cases (China = 13, UK = 10), fall from height in 13 (China = 7, UK = 6), sports in 5 (China = 0, UK = 5) and others in 3 (China = 2, UK = 1).

Patients admitted with cervical injuries to the NSIC between January 1995 and December 1998, and were aged between 18 and 60 years at the time of their injury, were invited to take part in the study. Each of the 22 British participants was matched with a Chinese participant by injury characteristics and demographic information. Those who were excluded from the study were those who were ambulant, on ventilation, had a brain injury, or had a significant mental health problem or history.

Measures

The following measures were used for data collection:

- (i) *Fugl-Meyer Questionnaire of Life Satisfaction*.¹⁵ The questionnaire includes nine items and self-assessment was conducted by marking 1–6 points for each item: 1, very dissatisfying; 2, dissatisfying; 3, rather dissatisfying; 4, rather satisfying; 5, satisfying and 6, very satisfying. The items were as follows:

Life as a whole is...
My vocational situation is...
My financial situation is...
My leisure situation is...
My contact with friends and acquaintances are...
My sexual life is...
My ability to manage my self-care (dressing, hygiene, transfers etc.) is...
My family life is...
My partner relationship is...

- (ii) Questionnaire for quality, value and meaning of life was specifically designed for this study by LO. It contains QOL (one's perception of their position in life), value of life (the amount of value one places on their life) and meaning of life (one's ability to find a reason for living) subscales. The patients make self-assessment between 0 and 100 points, of which, 0, very poor; 100, very good. As a newly developed measure, its psychometric properties have yet to be reported.
- (iii) Zigmond and Snaith's Hospital Anxiety and Depression Scale (HADS).¹⁶ The diagnostic criteria are: 0–7, no anxiety or depression; 8–10, borderline symptomatology; 11–21, anxiety or depression. The reported psychometric properties of the Chinese-Cantonese version of the HADS indicates that despite some limitations in identifying some depressive disorders, it remains one of the best measures of mood in China.¹⁷

Procedure

A total of 54 British patients who had previously been inpatients at the NSIC fitted the inclusion criteria. Questionnaires and reminders were sent to all 54 patients, and 27 patients returned the questionnaire (50%). Of these 27, 4 were later excluded as they began walking. The United Kingdom handed the data from the remaining 22 patients to China for collaborative study. China sent out questionnaires to 60 patients of similar criteria and a total of 36 (60%) patients responded. Finally, 22 patients who best matched the British sample were selected for the study.

Statistics

SPSS was used for statistical analysis. Results of life satisfaction questionnaire were analysed using Mann–Whitney *U*-test. Results of quality, value and meaning of life questionnaire and results of HADS were analysed using an independent sample *t*-test.

We certify that all applicable institutional and governmental regulations concerning the ethical use of human volunteers were followed during the course of this research.

Results

Life satisfaction

The satisfaction levels in all categories are much greater in the British sample compared to the Chinese sample. These differences reach statistical significance in the case of vocational and financial situations and family life, as presented in Table 1.

No significant differences were identified between the Chinese and British participants in the remaining life satisfaction domains of life as a whole ($P=0.65$), self-care ($P=0.16$), leisure situation ($P=0.27$), sexual life ($P=0.51$), partnership relations ($P=0.79$) and contact with friends ($P=0.80$).

Visual analogue measures for quality, value and meaning of life

A significant difference was found between the Chinese and British participants in ratings of value of life ($t=3.396$,

Table 1 Comparison of life satisfaction between British and Chinese samples

Satisfaction	Chinese (median)	British (median)	U (Mann–Whitney)	P
Life as a whole	4.0	4.0	223.0	0.65
Self-care	2.0	3.0	183.0	0.16
Leisure	4.0	4.0	196.0	0.27
Vocational	2.0	4.5	144.5	0.02
Financial	2.0	4.0	139.0	0.01
Sexual life	2.0	1.5	216.0	0.51
Partnership	5.0	5.0	220.5	0.79
Family life	5.0	5.5	123.5	0.01
Social	5.0	4.0	231.5	0.80

Table 2 Comparison of the quality, value and meaning of life and HADS scores between Chinese and British samples

Description	Chinese (mean)	British (mean)	t	P
Value of life	57.0	80.0	3.40	0.02
Quality of life	64.1	65.7	0.27	0.79
Meaning of life	61.6	70.0	1.00	0.32
Anxiety	9.0	6.5	-2.18	0.04
Depression	7.6	4.4	-2.80	0.01

d.f. = 42, $P=0.02$) with the British scoring significantly higher than the Chinese on this scale with means of 80 and 57% respectively (Table 2).

No significant differences were found between the two groups on ratings of QOL ($t=0.27$, d.f. = 42, $P=0.79$, China mean = 64.1, UK mean = 65.7) or meaning of life ($t=1.00$, d.f. = 42, $P=0.32$, China mean = 61.6, UK mean = 70.0).

HADS

The results are presented in Table 2.

Anxiety

The Chinese sample scored significantly higher than the British ($t=-2.18$, d.f. = 42, $P=0.04$) with mean scores of 9.0 and 6.5 respectively.

Depression

The depression scale of the HADS also revealed a significant difference. The Chinese sample scored significantly higher than the British ($t=-2.80$, d.f. = 42, $P=0.01$) with mean scores of 7.6 and 4.4.

Discussion

In terms of overall results of life satisfaction, there is no difference of statistical significance between the Chinese and British samples. This may imply that the coping ability of both Chinese and British participants with tetraplegia was similar. As far as the eight specific domains are concerned, there were significant differences between the two samples in vocation, finance and family life. The British participants were much more satisfied with their lives in these areas, thus

supporting previous reports of higher life satisfaction scores from American compared to Chinese participants with SCI.² The difference in economic development, social policies of reintegration into the society, vocational rehabilitation and public attitude towards employment of people with tetraplegia may have contributed to the difference in life satisfaction.

However, there was no significant difference between the Chinese and British samples in life as a whole, self-care, leisure situation, sexual life, partnership relations and contact with friends. In these domains, the Chinese sample achieved results similar to the British. This indicates that the attitudes towards sexual life, partnership relations and contact with friends after injury are similar between the two groups. Alternatively, it is possible that the Chinese are less willing to show dissatisfaction with the more social parts of their lives due to the collectivist aspect of their culture being so important. Interestingly, a recent study by Wu and Chan¹⁸ has identified the most problematic areas of adjustment for people with SCI in Taiwan as vocational, sexual and leisure. Nonetheless, the current results highlight specific areas of life that are less fulfilled for the Chinese participants compared to the British, and identify aspects of the rehabilitation system that would benefit from some more attention.

As to quality, value and meaning of life, there was a significant difference in value of life between participants from China and the United Kingdom. The British sample highly (80%) valued their life despite severe disability whereas the Chinese sample only marginally (57%) valued it. This may reflect the differential impact of SCI due to culture, in that Chinese citizens are expected to be more useful and productive community members compared to British citizens.⁷ Consequently, this affects how someone with tetraplegia may view their contribution to their family and society, their assessment of the severity of their injury, and perhaps in turn their appraisal of their situation, coping and mood. Importantly, research has shown that in comparison to other European countries, British people with SCI have lower rates of employment and higher depression and anxiety scores,¹⁹ indicating that the British rehabilitation system has lessons to learn from its European neighbours.

Although there was great discrepancy in living standards between China and the United Kingdom, the participants of both countries evaluated their QOL with similar rates (64.9 and 65.6% respectively). This is at odds with research showing that Swedish people with SCI rate their QOL as similar to that before injury,⁵ whereas Afghan people with SCI rate their QOL as significantly lower than the wider Afghan population.⁶ The present finding may indicate that both groups were happy among their own compatriots of similar living standards. However, this does not mean that objective QOL (in terms of physical independence and so on) is the same between the two groups. The similar ratings of subjective QOL may reflect comparable differences between the expectations of the impact of an SCI on their daily life and their current lifestyles, independent of nationality. Similar results were seen as far as meaning of life is

concerned with 61.5 and 70% for Chinese and British participants respectively. Despite differences in culture, value and social economical condition, the self-reported quality and meaning of life of the two groups were similar.

As to HADS, British participants had lower scores than their Chinese counterparts. In general, the scores of the British participants fell more frequently in the average range compared to scores from the Chinese participants. This is in line with reports that scores of depression are higher in an SCI sample from Hong Kong compared to samples from countries with more developed economies.⁷ It could be argued that the HADS is less sensitive to identifying anxiety and depression in the Chinese population because of the tendency for the Chinese to be more reserved and less emotionally expressive. However, if this is the case then the results from this study could be classed as conservative, suggesting that the difference in anxiety and depression levels between the two groups is greater than is reported here. Differences in social, economical and family conditions between the two countries may be important alongside the differences in self-adaptation and self-assessment of severity of disability. It could be that the more developed psychological care provided for the British sample led to effective self-adaptation and the adoption of a more positive approach in re-assessing their modified life. Such an explanation would indicate the need for future emphasis to focus on facilitating psychological adjustment for people with tetraplegia in China.

It is important to acknowledge some potential limitations of the study, and to highlight how these could lead to further investigations in this area. There is a shortage of literature comparing psychological variables such as life satisfaction, QOL and mood between the general Chinese and British populations. Therefore, the conclusion that the differences in these variables are specific to the SCI population should be taken with care. For clarification on this issue, further investigation should compare these variables in the general British and Chinese populations and consequently highlight whether interventions aimed at the rehabilitation pathway would be sufficient. It is also important to highlight that the measures in the current study were self-reported perceptions of the individual's situation. Variables such as vocational status and family situation were not recorded, and there is room for further research to investigate more objective correlations. Furthermore, the opportunistic sample is limited in its comparability to the wider SCI population due to its small size. Finally, the questionnaire for quality, value and meaning of life is a newly developed scale, and therefore future research should examine its psychometric properties.

Conclusions

Although China's medical rehabilitation has been progressing considerably, needs remain to be addressed in areas relating to vocational, financial and family-life issues. Despite differences in socio-cultural backgrounds, the attitudes towards life as a whole, self-care, leisure situation,

sexual life, partnership relations and contact with friends were similar independent of nationality. The British samples were found to value their life more and report lower depression and anxiety scores compared to their Chinese counterparts. To further improve the value placed on life by Chinese people with tetraplegia, and to reduce anxiety and depression scores, the results from the current study suggest that future emphasis of rehabilitation should include psychological issues surrounding adjustment.

Acknowledgements

We thank all the participants from China and the United Kingdom for taking part in the research. We are also grateful to Dajue Wang for his help in communication and liaison.

References

- World Health Organization. *Measuring Quality of Life*. WHO Division of Mental Health, WHO: Geneva, 1997, pp 1–10.
- Hampton NZ, Marshall A. Culture, gender, self-efficacy, and life satisfaction: a comparison between Americans and Chinese people with spinal cord injuries. *J Rehabil* 2000; **66**: 21–28.
- Leelakulthanit O, Day R. Cross cultural comparisons of quality of life of Thais and Americans. *Soc Indic Res* 1993; **30**: 49–70.
- Diener E, Suh E, Smith H, Shao L. National differences in reported subjective well-being: why do they occur? *Soc Indic Res* 1995; **34**: 7–32.
- Stensman R. Adjustment to a traumatic spinal cord injury. A longitudinal study of self-reported quality of life. *Paraplegia* 1994; **32**: 416–422.
- Deconinck H. The health condition of spinal cord injuries in two Afghan towns. *Spinal Cord* 2003; **41**: 303–309.
- Chan RCK, Lee PWH, Lieh-Mak F. Coping with spinal cord injury: personal and marital adjustment in the Hong Kong Chinese setting. *Spinal Cord* 2000; **38**: 687–696.
- Diener E, Diener M. Cross-cultural correlates of life satisfaction and self-esteem. *J Pers Soc Psychol* 1995; **68**: 653–663.
- Dijkers MPJM, Yavuzer G, Ergin S, Weitzenkamp D, Whiteneck GG. A tale of two countries: environmental impacts on social participation after spinal cord injury. *Spinal Cord* 2002; **40**: 351–362.
- Chan SCC, Chan APS. Rehabilitation outcomes following traumatic spinal cord injury in a tertiary spinal cord injury centre: a comparison with an international standard. *Spinal Cord* 2005; **43**: 489–498.
- Levy LF, Makarawo S, Madzivire D, Bhebhe E, Verbeck N, Parry O. Problems, struggles and some success with spinal cord injury in Zimbabwe. *Spinal Cord* 1998; **36**: 213–218.
- Kraus JF, Franti CE, Riggins RS, Richards D, Borhani NO. Incidence of traumatic spinal cord lesions. *J Chronic Disabil* 1975; **28**: 471–492.
- DeVivo MJ, Fine PR, Maetz HM, Stover SL. Prevalence of spinal cord injury: a re-estimation of employing life table techniques. *Arch Neurol* 1980; **37**: 707–708.
- Gureje O, Lasebikan VO. Use of mental health services in a developing country. *Br J Psychiatry* 2006; **41**: 44–49.
- Fugl-Meyer AR. Happiness and domain-specific life satisfaction in northern Sweden. *Clin Rehabil* 1991; **5**: 25–33.
- Zigmond AS, Snaith RP. The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica* 1983; **67**: 361–370.
- Leung CM, Wing YK, Kwong PK, Lo A, Shum K. Validation of the Chinese-Cantonese version of the Hospital Anxiety and Depression Scale and comparison with the Hamilton Rating Scale of Depression. *Acta Psychiatrica Scandinavica* 1999; **100**: 456–461.
- Wu MY, Chan F. Psychosocial adjustment patterns of persons with spinal cord injury in Taiwan. *Disabil Rehabil* 2007; **29**: 1847–1857.
- Kennedy P, Lude P, Taylor N. Quality of life, social participation, appraisals and coping post spinal cord injury: a review of four community samples. *Spinal Cord* 2006; **44**: 95–105.