Quality of Life in Patients with Spinal Cord Injury Attending Selected Rehabilitation Centers of Nepal

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ABSTRACT

Background: Spinal cord injury is damage to the spinal cord resulting from trauma, diseases or degenerations. The aim of this study is to identify the quality of life among the patients with spinal cord injury in relation to the physical, psychological, social and environmental health.

Methods: This is a cross-sectional study performed within a period of one year in 103 spinal cord injury patients in two different rehabilitation centers of Nepal by using WHOQOL-BREF through face to face interview. The quality of life had been analyzed by descriptive and inferential statistics by using socio-demographic and disease related variables.

Results: The study finding revealed that the overall quality of life was impaired in spinal cord injury patients and it was more in psychological (48.17±14.99) and environmental health (38.70±13.79) as compared to physical (55.01±12.77) and social health (51.81±12.89). The mean difference of quality of life score in education (p=0.017), occupation (p= 0.003), and income status (p=0.001) was found statistically significant (p value <0.05) and the highest relationship was found between the psychological health and environmental health (r=0.668).

Conclusions: More than 50%of the spinal cord injury patients had below the average quality of life. Physical health and social health scores are above the average but psychological and environmental health score are below the average. The overall quality of life of Spinal cord injury patients can be improved by modifying psychological health, environmental health, education, occupation, and income status.

Keywords: Quality of life; rehabilitation; spinal cord injury patients.

INTRODUCTION

Spinal cord injury (SCI) is an insult to the spinal cord resulting in a change in its temporary or permanent normal motor, sensory or autonomic function.[1,2] Quality of life is multidimensional concept, which is physical, mental, social and spiritual functioning of the people and depends on their political, cultural, economic and spiritual beliefes.[3,4] It has been established that people with spinal cord injury perceived both health-related and overall quality of life at a lower level in comparison to normal individuals.[5-7]

This study aims to identify factors affecting the quality of life which might be beneficial for organizing awareness programs, planning, and research and to develop guidelines for the improvement of quality of life of spinal injury patients. Correlation between the different domains of quality of life and their significance were also analyzed to identify the level of quality of life of spinal injury patients.

METHODS

This is a descriptive cross-sectional study performed in two different spinal injury rehabilitation centers of Nepal (Chitwan spinal injury centre, Bharatpur Hospital, Chitwan and Spinal Injury Rehabilitation Centre, Sanga, Kavre) within a period of one year (05/04/2016 to 5/04/2017). One hundred and three patients with ASIA-A neurological status below the level of injury and admitted for the rehabilitation, were included. Ethical clearance was taken from Institutional review committee, Chitwan Medical College (IRC-CMC) Bharatpur, Chitwan. Semi-structured questionnaires using standard WHO quality of life questionnaires (WHOQOL-BREF) was used.

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Research instruments were developed on the basis of literature review for socio-demographic and disease related variables. For the use of the tools in Nepalese context, forward translation (from English to Nepali) and backward translation (from Nepali to English) was done. Pre-testing of the WHOQOL-BREF tools was done in 8 samples in Chitwan Spinal Injury Centre, Bharatpur Hospital. Cronbach's alpha coefficient was computed to determine the reliability of the instruments. All the respondents were interviewed by face to face interview method by using Semi-structured interview schedule after taking verbal and written consent. Data analysis was done by using IBM-SPSS 20. According to the nature of the variables, standard t-test, one way ANOVA and Pearson's correlation were used for the analysis.

RESULTS

In this study socio-demographic and disease related characteristic and their association with the quality of life were analyzed. Majority of the patients belong to the productive age group (47.6% from 20-29 years and 28.2% from 30-39 years). Among the 103 patients 65(63.1%) were male and 38(36.9%) were female. While analyzing the educational and occupational status, majority of them (95=92.2%) were literate, 32 (31.1%) patients had completed secondary education whereas 8 (7.8%) had bachelor and above educational level but unfortunately most of them (53=51.5%) were unemployed. Analysis of the disease related characteristics of spinal cord Injury patients showed that majority of the respondents (96 =93.2%) had paraplegia and only seven (6.8%) had quadriplegia. Seventy-three (70.9%) respondents had spinal cord injury due to fall, 21 (20.4%) due to road traffic accident, 8 (7.8%) due to disease conditions and 1.0% due to electric current. Fifty (48.5%) respondents had injury since 1-5 yrs whereas only 12 (11.7%) had injury since more than 15 yrs.

Different domains of the Quality of Life (Physical health, psychological health, social health, and environmental health) were analyzed by using the Mean± SD of the raw and transformed scores (raw scores are calculated by using SPSS from the collected data and converted in to the 0-100 range WHOQOL standard transformed scores). In physical health, patients who had ability to get around had high quality of life score (66.01±19.75) and who suffered from pain had low quality of life low score (44.90±23.57). Among the psychological health negative feeling had high score (64.32±25.38), whereas a respondent who feels the life is meaningful had low score (39.07±27.04).Analysis of the social health showed that quality of life score is high (65.29±18.60) in patients

who get support from the friends whereas the score was low in sexual life (32.52±18.46). Regarding the environmental health, respondents who had information needed for day-to-day life had high quality of life score (58.49±22.29) whereas quality of life score was low in transportation (10.43±19.96) (Table1).

Table 1. Quality of life score in different domain of Spinal cord injury patients (n=103).

Domains	Raw score (Mean± SD)	Transform score (Mean± SD)	Range	
			Min	Max
Physical Health	22.38 ± 3.56	55.01 ± 12.77	19.00	88.00
Psychological Health	17.56 ± 3.55	48.17 ± 14.99	19.00	94.00
Social Health	9.22 ± 1.55	51.81 ± 12.89	25.00	81.00
Environmental Health	19.84 ± 4.27	38.70 ± 13.79	19.00	75.00
Overall quality of life	2.7 ± 0.64	42.59 ± 16.17	12.50	87.50

While analyzing the different domains of the quality of life together, physical health (55.01 ± 12.77) and social health (51.81 ± 12.89) had score above the average, psychological health (48.17 ± 14.99) and environmental health (38.70 ± 13.79) had score below the average and the overall quality of life score was below the average (Table 2).

Table 2. Relationship between the quality of life score and its domain.

Domain	Physical Health	Psycho-logical Health	Social Health	Environ-mental Health
Physical Health	1			
Psychological Health	0.585**	1		
Social Health	0.244*	0.236*	1	
Environmental Health	0.577**	0.668**	0.369**	1
Overall QOL	0.423**	0.617**	0.268**	0.613**

**. Correlation is significance at the 0.01 level (2-tailed), *. Correlation is significance at the 0.05 level (2-tailed).

Pearson correlation coefficient of the different domains of quality of life score was calculated to find out the bi-variate relationship among the domains of quality of life and overall quality of life score with each domain. Positive correlation was found in all domains including overall

quality of life score. Among the domains the highest correlation value (r=0.668) between psychological health and environmental health and lowest between psychological health and social health (r=0.236) was found. The overall quality of life score with four domains (physical health, psychological health, social health and environmental health) was 0.423, 0.617, 0.268, 0.613 respectively which were statistically significant (p <0.001) (Table 3).

Table3. Frequency distribution of various domains according to the level of quality of life score (n=103)		
Domain (Mean Score)	Below Average No. (%)	Above Average No. (%)
Physical health (55.0)	39(37.9)	64(62.1)
Psychological health (48.1)	59(57.3)	44(42.7)
Social health (51.8)	53(51.5)	50(48.5)
Environmental health (38.7)	60(58.3)	43(41.7)
Overall quality of life (42.5)	61(59.2)	42(40.8)

Mean score of the different domains were also analyzed according to the level of quality of life. Sixty four (62.1%) patients had above the mean score and 39 (37%) had below the mean score in physical health, similarly 59(57.3%) patients had below mean and 44(42.7%) had above mean score in psychological health. There were 53(51.5%) patients had below mean and 50 (48.5%) patients had above mean score in social health, 60 (58.3%) patients had below mean and 43(41.7%) had above mean score in environmental health. Regarding the overall quality of life, there were 61(59.2%) patient had low quality of life which had score below the mean and 42 (40.8%) patients had score above the mean who had high quality of life.

DISCUSSION

Socio demographic characteristics showed that mean ± SD age of the patients was 33.16 ± 12.17, majority of the respondents belonged to age group 20-29 years (47.6%), majority of them were from rural area (78.6%) and the most common mode of injury was fall injury (70.9%). Most of the respondents were literate (92.2%), among them 31.1% had completed secondary level education but unemployed (51.5%). These findings are consistent with the study done in Iran on 106 patients, showed that mean ±SD age of the patients were 37.1±1.7, 73.4% were literate and 33.9% had completed high school level but 51.8% were unemployed.[8] The overall mean score of Quality of Life was found 42.59±16.17 and higher QOL among the domain was physical health (55.01 ± 12.77) followed by social health (51.81 ± 12.89)

whereas lower in psychological health (48.17 ± 14.99), and environmental health (38.70 ± 13.79). Consistent to this finding was found in a study conducted in Brazil in 47 patients, they found that physical health mean 58.59, and social health mean 68.79 in contrast to psychological health mean 63.82, and environmental health mean 55.20.[9] Different results showed by a study done in 84 patients in India noted for the physical health (49.76 ± 18.74), psychological well-being (48.57 ± 17.04), social relationships (57.88 ± 17.04) and environment (49.85 ± 17.77).[10]

This study finding showed that there was statistical significance between overall quality of life and level of education (p=0.017) which indicates that patients having bachelor and above level of education had high quality of life (57.81±18.82). Similar finding was found in the study conducted in 106 patient in Iran showed significant relationship between QOL and educational level (P= 0.002).[8] whereas there was no significance difference found in quality of life and educational level (p>0.05) in the study done in 58 patients in Hong Kong[11] and in the study done in 50 patients in India .[12]

This study showed that there was statistical significance between overall quality of life and occupation (p= 0.003) which indicate that the patients who involve in service had high quality of life (55.55±19.75). The employed patients were economically sound, can meet their daily needs, got opportunity to interact with others, got confidence to cope the situation and learned the things to improve the quality of life. These findings are consistent with the study done in 84 patient in India, where they were also found significant relationship between employment status and quality of life (p<0.001).[10] Statistical significant relationship between the overall quality of life and income status (p=0.001) was also found. In the qualitative study done in 23 informants in Africa found that lack of financial resources worsen the daily challenges.[13] There was no statistically significant relationship between the overall a quality of Life and age, sex, marital status, type of family, place of residence, ethnicity, religion, type of SCI, causes of SCI, duration of injury and presence of co-morbidities (p>0.05).

Positive correlation between the domains and the overall quality of Life was found. Psychological health (r=0.617) and environmental health (r=0.613) had strong positive correlation with overall quality of life whereas physical health (r=0.423) and social health (r= 0.268) had weak positive correlation. A similar study done in 47 patients in Brazil found that social and environment domain had

higher correlation with overall quality of life.[9] Quality of life scores in environmental health especially in transportation were below the average, so the easily accessible transportation facilities should be provided for these patients. Counseling and psychological treatment are also important because below the average quality of life scores were also found on the psychological health.

CONCLUSIONS

This study concluded that the overall quality of life score in the patients with spinal cord injury in Nepal is below the mean value of WHOQOL scores. The positive correlation was found between physical, psychological, social, environmental health and the overall quality of life score, so these factors should be addressed during the process of rehabilitation and community level. We have also found that major influencing factors of the quality of life were educational level, income status and occupation, so our aim should be focused on improving the income status by modifying occupation and upgrading the educational level. Findings of this study may be useful for conducting awareness programme at community level, formulating plan and policy at national and local government level, conducting research activities and improving the management of hospital and rehabilitation centers for the overall improvement of quality of life of spinal cord injury patients.

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