



Quality of life after spinal cord injury: An overview[☆]



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Abstract

Objective: The objective of this study was to assess the quality of life (QoL) in spinal cord injury (SCI) with neurogenic bladder problem in Indonesia.

Method: This descriptive study, involving 55 participants, used the WHO Quality of Life brief form (WHOQOL-BREF) to measure QOL in each of four domains: physical, psychological, social relationships, and environment.

Results: The mean scores of QOL after analysis of the data were 11.41 for the physical domain, 12.38 for the psychological domain, 12.22 for social relationships, and 11.55 for environment. The total mean QOL score was 47.55, which is a relatively low score compared to generally healthy adults.

Conclusion: Among the four domains of QOL, the physical domain had the lowest mean score. These results highlight the necessity of exploring the factors related to QOL for SCI patients with neurogenic bladder problem.

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Introduction

Spinal cord injury (SCI) describes damage sustained to the spinal column with a risk of or actual damage to the spinal cord beyond the body's capacity to repair or compensate.¹ SCIs are relatively rare, but they permanently change lives

and create significant medical expenses. Study results have indicated that people with an SCI die two to five times earlier than the general population. Furthermore, SCI is associated with high costs for ongoing care and rehabilitation,² and the SCI can lead to other health disorders.

The term neurogenic bladder problems refer to disorders of the central or peripheral nervous system that cause bladder dysfunction related to storage, emptying, or both. The central nervous system and the peripheral nervous system each play a necessary role in the normal functioning of the bladder. Thus, an incidence of SCI can cause voiding disorders due to a breakdown of the central synapse between the afferent and efferent pathways of the reflex. There are a number of approaches to overcoming or

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treating this problem, where conservative therapies include, for example, behavioral techniques, physiotherapy, intermittent catheterization, transurethral catheterization, and suprapubic catheters. More intensive treatments include suprapubic cystostomy and systemic or intrathecal pharmacological treatment.³ All forms of bladder management have a direct effect on the quality of life (QOL) for SCI patients, as noted in a study by Liu et al.,⁴ who discussed the relationship between the method of bladder management and the QOL for SCI patients.

The World Health Organization (WHO) defines QOL as an individual's perception of their position in life in the context of the cultural system and values where the person lives, taking into account goals, expectations, standards, and concerns.⁵ In a study by de França et al.⁶ examining the effect of limitations caused by SCI on patient QOL, 53.2% of the respondents were not satisfied with their QOL. Another study highlighted the fact that people without an SCI have a better QOL when compared with those who have experienced an SCI.⁷

This study aimed to assess the QOL of patient with SCI incident that led to neurogenic bladder problem in Indonesian.

Method

This cross-sectional study used consecutive sampling to select 55 respondents. The inclusion criteria were outpatients who have SCI with neurogenic bladder between the ages of 17 and 60 years old who can read and write. The exclusion criteria were other co-morbidities that affect bladder function, such as tumors of the spine, head injury, and brain tumors. The study was conducted at Rumah Sakit Umum Pusat (RSUP) Fatmawati, Orthopedic Hospital, in Jakarta, Indonesia; Rumah Sakit Ortopedi Prof. Dr. R. Soeharso, in Surakarta, Indonesia and Rumah Sakit Umum Daerah Dr. Saiful Anwar, in Malang, Indonesia. Respondent demographics, such as age, gender, and marital status, were collected via questionnaire. Level of injury was distinguished by either paraplegia or tetraplegia. The WHO Quality of Life short version instrument (WHOQOL-BREF) was used to measure QOL. Data was analyzed using t-test for comparing means between two groups and using ANOVA for comparing more than two groups. Analysis was done using $\alpha = 0.05$ and Confidence Interval 95%.

Results

The average age of respondent in this study was 43.62 ± 11.75 , with the youngest respondent being 18 years old and the oldest 60. More than half of the respondents were male, and over half (54.5%) were married. The average total QOL score was 47.55 ± 8.10 . Specific demographic information is given in Table 1.

Discussion

Our results indicated a decreased QOL for SCI patients with neurogenic bladder problem, which is in line with the results from a study by Luo et al., This is seen in

Table 1 Respondent ($n = 55$) sociodemographics.

Characteristics	<i>n</i>	%
Sex		
Male	38	69.1
Female	17	30.9
Marital status		
Married	30	54.5
Single	15	27.3
Divorce	10	18.2
Level of injury		
Paraplegia	50	90.9
Tetraplegia	5	9.1

Table 2 Quality of life after SCI ($n = 55$).

Quality of life domains	Mean	SD
Physical	11.41	2.27
Psychological	12.38	2.88
Social relationships	12.22	2.35
Environment	11.55	2.13
Total QOL score	47.55	8.10

the domains of physical health (11.61 ± 3.80), psychological health (10.11 ± 3.63), social relationships (11.46 ± 2.84), and environment (11.86 ± 2.51) (Table 2). Similar results were obtained by Hu et al.,⁸ who found that QOL scores in patients with SCI were lower in all domains than those for healthy people or populations of people with other disorders or diseases. Based on those prior studies, it could be concluded that the results obtained in our study showing poor QOL in SCI patients with neurogenic bladder were to be expected.

In contrast to a study by Chang et al.,⁹ which showed that QOL for males (11.70 ± 2.51) was better than for women (11.45 ± 2.12), our results showed a better QOL for women (47.92 ± 8.46) than men (47.38 ± 7.47) for SCI patients with neurogenic bladder. However, subsequent analysis determined the difference was not statistically significant ($p = 0.82$, $\alpha = 0.05$). This is in line with the findings of a study by Oh et al.,¹⁰ which found no difference in QOL between males and females across all domains. Other studies that confirm the finding of no statistical difference in QOL between men and women with an SCI include Chang et al.⁹ ($p = 0.424$, $\alpha = 0.05$) and Moghimian et al.¹¹

Similarly, the analysis of our study's results showed no significant correlation between age and QOL ($r = -0.042$; $p = 0.762$). Different results were obtained by Chang et al.,⁹ who found that SCI patients in younger age groups had better QOL scores than older SCI patients.

Age is an individual characteristic that cannot be changed. Studies have indicated that a relationship between age and QOL mainly arises in cases of chronic disease, such as with diabetes mellitus.¹² Numerous studies have shown that increasing age brings a greater risk of complications in SCI patients, and in turn, an increased risk of complications negatively affects prognosis.¹³ Younger SCI patients have a better chance of neurological improvement.

This is supported by improvements shown in motor scores for patients as documented in health care automated information system (AIS) records. With regard to neurogenic bladder, younger SCI patients tend to exhibit better bladder function and more independence in performing independent catheterization than older patients. Furthermore, older patients have a greater frequency of complications.¹⁴

Analysis of our results indicated no influence of marital status on QOL for SCI patients with neurogenic bladder whether they were married, single, or divorced. Despite the lack of statistical significance, our data reflect a lower QOL among divorced participants than those who were married or single. However, different results were obtained by Chang et al.,⁹ who found a significant difference between SCI patients who were either divorced or single and those who were married or living with a partner ($p=0.027$, $\alpha=0.05$).

In addition to the above, marital status has been indicated as a factor that influences QOL, and it has been reported that married people live longer than those who are not married. It is believed that marriage has a protective effect on health such that married couples tend to live longer. Theories propose that this effect is related to the socioeconomic benefits obtained by marriage as a bond that creates societal acceptance and preserves certain rights. Another factor may be the mutual economic support offered by marriage that can have a protective effect against uncertain economic situations. However, this theory is still not fully accepted.¹⁵

In terms of specific physical factors affecting QOL, the present study found that the participants who had a tetraplegic injury had better average QOL scores (49.92 ± 7.58) than those with a paraplegic injury (37.30 ± 8.18). However, statistical analysis showed no significance ($p=0.496$, $\alpha=0.05$). Thus, there appears to be no impact on QOL from the level of injury to SCI patients with neurogenic bladder.

These results are in line with the findings in an Iranian study involving 109 respondents. The study sorted participants into two groups based on whether their spinal injury had resulted in paraplegia or tetraplegia. In that study, QOL was measured using the Short-Form Health Survey (SF-36), and the results of analysis showed no difference in QOL between the tetraplegic and paraplegic participants ($p=0.34$, $\alpha=0.05$).¹⁶

However, a study conducted in Taiwan had different results. The Taiwanese study divided participants into four groups based on injury type—complete tetraplegia, incomplete tetraplegia, complete paraplegia, or incomplete paraplegia—and the results of analysis indicated significant differences between the four types.⁹

Tetraplegia is a disorder or loss of motor and/or sensory functioning in the cervical segments of the spinal cord, which causes dysfunction in all four extremities. Paraplegia refers to a disturbance or loss of motor and/or sensory functioning in the thoracic, lumbar, or sacral (but not cervical) segments of the spinal cord. In paraplegia, the arms still function.¹⁷ SCI patients who are tetraplegic thus have more limitations as compared to patients who are paraplegic. Specifically, in SCI with neurogenic bladder, proper functioning of the arms helps the patient to independently manage their bladder with intermittent catheterization, for example.

The results of this study indicate that SCI injury has no impact on QOL, although these patients had tetraplegia or paraplegia. This result may be due to other factors influencing the QOL for SCI patients with neurogenic bladder, such as the social support of a spouse, family, or close friends who may provide the assistance necessary for the tetraplegic patients to experience a QOL not fundamentally different from patients who are paraplegic.

The study shows that SCI with neurogenic bladder problem had impact on QOL score. Among four domain of QOL, physical domain was the lowest QOL score. Furthermore, further research is needed to determine the factors that can affect the QOL of SCI patients with neurogenic bladder. This is needed to be able to predict and provide appropriate management to improve QOL. However, this study also requires improvements in the collection respondent of SCI with neurogenic bladder, so that future studies can capture more respondents.

Conflict of interests

The authors declare no conflict of interest.

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