

Research article

Psychosocial outcomes following spinal cord injury in Iran

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Objective/background: In patients with spinal cord injury (SCI), SCI causes psychosocial complications that vary based on culture, conditions, and the amenities of each community. Health planners and social services should have full knowledge of these issues in order to plan schedules that address them. In this study, we aimed to understand the psychosocial problems of persons with SCI in Iran and to explore the requirements for minimizing these difficulties.

Design: This was a descriptive cross-sectional study.

Setting: Brain and Spinal Cord Injury Research (BASIR) Center, Tehran University of Medical Sciences, Tehran, Iran.

Participants: One hundred nineteen persons with SCI referred to BASIR clinic to receive outpatient rehabilitation.

Methods: In this study, trained interviewers administered a questionnaire to the participants. The questionnaire consisted of socio-demographic variables and psychosocial questions about finances, employment, housing, education, and social communication problems.

Results: Psychosocial problems for persons with SCI are mainly associated with financial hardship due to unemployment and the high cost of living, followed by difficulties with transportation, house modification, education, marriage, social communication, sports, and entertainment. Psychological problems include sadness, depression, irritability/anger, suicidal thoughts, and a lack of self-confidence. The levels of the aforementioned problems differ with respect to sex.

Conclusion: Persons suffering from SCI can face some serious psychosocial problems that may vary according to sex. For example, transportation difficulties can lead to problems such as unsociability. After recognizing these problems, the next step would be providing services to facilitate a productive lifestyle, enhancing social communication and psychological health, and ultimately creating a higher quality of life.

Keywords: Spinal cord injuries, Psychosocial issues, Employment, Social outcomes, Rehabilitation

Introduction

Spinal cord injury (SCI) results in long-term complications and has a negative impact on patients' lifestyles in different aspects such as their social and family relationships, education, employment, and financial status. SCI occurs most often in young adults when they are in their prime and are experiencing a productive life and social role.¹ Many factors affect recovery from SCI, such as personality and the social, cultural, and economic situation of the person with SCI.²

For people with SCI and their families, returning to the community, having good communication with relatives and friends, and living independently are important issues.³ They need special services to facilitate their community participation and improve their quality of life.⁴

Family members of persons with SCI are also involved in all of the problematic aspects: Revenue should be allocated differently, time should be accounted for caring, and social activities change. Hence, effective communication is important to maintain a strong family unit.⁵

The employment of individuals with SCI is very important for themselves, their families, and their

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communities. However, SCI may cause abject poverty due to the inability to work. Thus, in order to afford to live, individuals with SCI may get an allowance from governmental or non-governmental organizations⁶ such as the Welfare Organization of Iran.

Expenses for the therapy of people with SCI are high, including medications, rehabilitation, physiotherapy, occupational therapy, nursing care, home and car modifications, a wheelchair, other medical equipment and sanitary items. Immense lifetime expenditures can be expected when developing a comprehensive plan of life care.⁷ Furthermore, these problems can increase the psychological complications of SCI.

Health planners and social services need to have full knowledge of the psychosocial problems of individuals with SCI and related variability based on culture, physical, and environmental conditions and the amenities of each community. They should plan to minimize the factors that may lead to psychosocial problems and focus on providing the highest possible standard of living. In Iran, there are few studies about the psychosocial problems of persons with SCI.

In this study, we aimed to find the environmental and psychosocial problems of persons with SCI in Iran in order to minimize complications and to provide persons with SCI with independent, productive and happy lives.

Methods

Design and participants

A descriptive cross-sectional survey was conducted in 2012. The participants were patients with traumatic SCI who were referred for outpatient rehabilitation to the clinic of the Brain and Spinal Cord Injury Research (BASIR) Center, Tehran University of Medical Sciences. There were 81 (68%) men and 38 (32%) women, with a mean age of 32.4 ± 10.5 years and a median age of 31 years (percentiles of 25–75th were 25–38 years). The mean age at time of SCI was 28.1 ± 10.4 (2–57) years, and the median age was 26 years (percentiles of 25–75th were 21–34 years). Mean duration of SCI was 50.3 ± 55.2 months. There were no significant differences in these variables between the sexes.

The BASIR center is a referral center from all parts of Iran. In this center, there are different rehabilitation facilities such as physiotherapy, occupational therapy, psychological consultations, sexology, and family counseling, and examinations by neurosurgeons, urologists, proctologists, pain and medicine, and rehabilitation specialists.

Materials and measures

A researcher-made structured questionnaire was administered by trained interviewers and the data were collected. To design the questionnaire in the pilot study, first the specialists, nurses, occupational therapists, physiotherapists and medical personnel dealing with the patients with SCI, and also the persons with SCI themselves, were asked to express their ideas about psychosocial problems affecting people with SCI. Then, based on these issues, we designed a questionnaire in which the researcher asked questions about the problems and recorded the answers. All of the participants were asked the same questions based on the questionnaire. The questionnaire had two major parts.

The first part of the questionnaire was about demographic information and the clinical pathology of injury including age, sex, age at the time of injury, the number of family members at home, marital status, the number of children, injury status, complete or incomplete injury, and the reason of injury.

The second part of the questionnaire was about environmental and psychosocial problems and included occupation before and after SCI, education, residence status (personal, leasing, or caring center), having a private room at home, having equipment specific for people with SCI (like a mattress, proper bed and wheelchair, bathroom wheelchair, and toiletries), dependence on others (none/some/a lot), going out alone, having difficulty visiting the physician, having medical equipment and recovery specialists near the home (like physiotherapy and occupational therapy), having difficulty finding accommodation in other cities to use rehabilitation facilities, waiting for a long time to visit the physician, having few recreation and entertainment options, financial problems (therapy, rehabilitation, commuting expenses and so on), having insurance, having difficulty moving about in the home (not having an elevator or ramp) or out of home (inadequate within-the-city commuting paths, improper ramps, few appropriate vehicle for individuals with wheelchairs, no disability-specific parking at hospitals and in the streets), the person who meets the living expenses, having a good relationship with family members (lack of tension between the people with SCI and the family members in spite of dependence on them for doing daily activities), relatives or friends, relationships and a tendency to make connections with other SCI people, sadness, suicidal thoughts, self-confidence, and early outrage after the injury. Most of the questions were answered with yes or no. The ethical approval of this study was obtained from the Tehran University of

Medical Sciences. Each subject signed a written informed consent prior to participation.

Education level was categorized as illiterate, primary and middle school (1–8 years of education), high school and diploma (9–12 years of education), and university education (>12 years of education).

The level of a lesion was classified as either paraplegia (injury to the sacral (S1–S5), lumbar (L1–L5), or thoracic (T2–T12) regions of the spine) or tetraplegia (injury to T1 or the cervical spine (C1–C9)). Completeness was classified as either complete (no sensory or motor function preserved in the sacral segments (S4–S5)) or incomplete (sensory but variable motor function preserved below the neurological level of injury).

Academic experts evaluated the validity of the questionnaire. We tried to consider most aspects of psychosocial issues in individuals with SCI. The reliability of the questionnaire (internal consistency) was estimated to be 0.71 by using Cronbach’s alpha coefficient. We compared our results with the 2011 National Population and Housing Census in Iran (2011 NPHC in Iran) (<http://amar.org.ir/Portals/1/Iran/census-2.pdf>), which was at almost the same time as our study.

Statistical analysis

The normality of the data was evaluated using a One-Sample Kolmogorov-Smirnov Test. Continuous variables in two categorical groups were analyzed using a *t*-test or Mann–Whitney *U* test as appropriate. Relationships between categorical variables were tested using a χ^2 test. Continuous variables were presented as mean \pm standard deviation. The significance level was set at $P \leq 0.05$.

Results

Most of the patients (about 94%) replied to the questions (119 of 127). The most prevalent causes of injury were car and motorcycle accidents (66.4%) and falling (12.6%). Fifty-one (42.9%) were single, 59 (49.6%) were married, four (3.4%) were divorced, three (2.5%) were widowed, and two (1.7%) were separated; the latter three occurred after SCI. Sixty patients (50.4%) had an education level of less than 8 years (illiterate or primary–middle school). The demographic and clinical characteristics of participants have been shown in Table 1.

In married patients, two (3.4%) had no child, 22 (37.3%) had one child, 15 (25.4%) had two children,

Table 1 Demographic and clinicopathologic characteristics of SCI persons

		Sex		Total N = 119	P
		Men N = 81	Women N = 38		
Age (years)		31.9 \pm 10.9	33.4 \pm 9.8	32.4 \pm 10.5	0.4
Age at time of SCI (years)		27.7 \pm 10.4	28.9 \pm 10.6	28.1 \pm 10.4	0.5
Duration of SCI (months)		48.6 \pm 49.4	53.7 \pm 66.4	50.3 \pm 55.2	0.6
Level of injury	Paraplegia	51 (63%)	29 (76.3%)	80 (67.2%)	0.1
	Tetraplegia	30 (37%)	9 (23.7%)	39 (32.8%)	
Completeness	Incomplete	38 (46.9%)	21 (55.3%)	59 (49.6%)	0.4
	Complete	43 (53.1%)	17 (44.7%)	60 (50.4%)	
Marital status	Single	40 (49.4%)	11 (28.9%)	51 (42.9%)	0.04
	Married	38 (46.9%)	21 (55.3%)	59 (49.6%)	
	Divorced	2 (2.5%)	2 (5.3%)	4 (3.4%)	
	Widow	0 (0%)	3 (7.9%)	3 (2.5%)	
	Separated	1 (1.2%)	1 (2.6%)	2 (1.7%)	
Education level	Illiterate	2 (2.5%)	3 (7.9%)	5 (4.2%)	0.2
	Primary–middle school	42 (51.9%)	13 (34.2%)	55 (46.2%)	
	High school–Diploma	26 (32.1%)	14 (36.8%)	40 (33.6%)	
	University Education	11 (13.6%)	8 (21.1%)	19 (16.0%)	
Occupation	Unemployed	60 (74.1%)	25 (65.8%)	85 (71.4%)	0.2
	Student	4 (4.9%)	5 (13.2%)	9 (7.6%)	
	Employed	17 (21.0%)	8 (21.1%)	25 (21.0%)	
The cause of injury	Crash injury	47 (58.0%)	32 (84.2%)	79 (66.4%)	
	Falling	10 (12.3%)	5 (13.2%)	15 (12.6%)	
	Sport injuries	5 (6.2%)	0 (0.0%)	5 (4.2%)	
	Occupational injuries	9 (11.1%)	0 (0.0%)	9 (7.6%)	
	Shot	3 (3.7%)	0 (0.0%)	3 (2.5%)	
	Direct Pressure	2 (2.5%)	1 (2.6%)	3 (2.5%)	
	Stabbed	3 (3.7%)	0 (0.0%)	3 (2.5%)	
	Explosion	1 (1.2%)	0 (0.0%)	1 (0.8%)	
	latrogenic	1 (1.2%)	0 (0.0%)	1 (0.8%)	

Table 2 Environmental variables and psychosocial status of participants with SCI

		Sex		Total N = 119	P
		Men N = 81	Women N = 38		
Housing problems		42 (52.5%)	14 (38.9%)	56 (48.3%)	0.1
Adequacy of sanitary items	Yes	38 (46.9%)	21 (55.3%)	59 (49.6%)	0.4
Dependence on others	Non	15 (18.5%)	3 (7.9%)	18 (15.1%)	0.1
	Somewhat	17 (21.0%)	14 (36.8%)	31 (26.1%)	
	A lot	49 (60.5%)	21 (55.3%)	70 (58.8%)	
Going out of home alone	Yes	22 (27.2%)	7 (18.4%)	29 (24.4%)	0.3
Having difficulty visiting the physician	Yes	17 (21.5%)	8 (22.2%)	25 (21.7%)	0.9
Having medical equipment and recovery specialists near the home	Yes	48 (60.0%)	18 (48.6%)	66 (56.4%)	0.2
Having difficulty finding accommodation in other cities to use rehabilitation facilities	Yes	48 (63.2%)	10 (33.3%)	58 (54.7%)	0.005
Waiting for a long time to visit the physician	Yes	59 (72.8%)	23 (60.5%)	82 (68.9%)	0.1
Having recreation and entertainment options	Yes	13 (17.1%)	9 (27.3%)	22 (20.2%)	0.2
Financial problem	Yes	64 (80.0%)	34 (89.5%)	98 (83.1%)	0.2
Having insurance	Yes	73 (90.1%)	34 (89.5%)	107 (89.9%)	0.9
The person who meets the living expenses	Individual with SCI	27 (33.3%)	6 (15.8%)	33 (27.7%)	0.025
	Family	49 (60.5%)	32 (84.2%)	81 (68.1%)	
	Governments agencies	5 (6.2%)	0 (.0%)	5 (4.2%)	
Having suicidal thoughts	Yes	20 (24.7%)	16 (42.1%)	36 (30.3%)	0.054
Sadness after SCI	Yes	50 (61.7%)	28 (73.7%)	78 (65.5%)	0.2
The need for psychological consulting	Yes	35 (43.2%)	31 (81.6%)	66 (55.5%)	<0.0001
Self-confidence	Bad	12 (14.8%)	9 (23.7%)	21 (17.6%)	0.4
	Good	18 (22.2%)	9 (23.7%)	27 (22.7%)	
	Excellent	51 (63.0%)	20 (52.6%)	71 (59.7%)	
Early outrage	Yes	55 (67.9%)	27 (71.1%)	82 (68.9%)	0.7

and 20 (34%) had three to seven children before SCI, and only one woman had a newborn baby after SCI.

Most of the persons with SCI were taken care by their families: 35.3% by their spouse, 37% by parents, 21% by other family members such as a brother or sister, and 5.9% by a nurse; only 0.8% reported self-care. With respect to dependence on others, 31 (26.1%) had little dependence, whereas 70 (58.8%) were highly dependent on others and were unable to perform daily tasks. Most of the individuals with SCI (75.6%) could not leave home alone. Environmental variables and psychosocial outcomes of the participants are listed in Table 2.

The majority of the participants (83.1%) had financial problems. Before SCI, only 22 (18.5%) were unemployed, but after SCI, 85 (71.4%) lost their jobs. There was no relationship between level of injury and financial problems (P = 0.3), education level (P = 0.2) or employment (P = 0.9). Only 33 (27.7%) were financially self-sufficient, in most cases, the family made ends meet (81 (68.1%)), with only a few persons (5 (4.2%)) funded by governmental or non-governmental organizations (P = 0.025).

Fifty-six (48.3%) had problems with regard to the house structure, such as lacking a ramp or elevator, or having inadequate space to move a wheelchair. The household population for 95 persons with SCI (79.8%)

was between 3 and 7, and in 15 (12.6%) it was 8–10; most of them had no private room. Thirty-seven (31.1%) had a rented house, and one (0.8%) lived in a care center. The mean household population was 5 ± 2, and 50% had a household population of 4–6.

About 90 (75.6%) had transportation problems. By transportation problems, we mean uneven sidewalks, no dedicated public transportation for persons with SCI, non-suitable buses for people using wheelchairs (no ramps), insufficient paramedic transportation, and few disability-specific parking spots.

Sixty (50.4%) had trouble providing sanitary items for example, lacked financial resources, to buy the items or unable to source the specialized items such as diapers, urinary catheters, anti-bed-sore mattresses, and suitable wheelchairs (light, strong, comfortable, anti-sore pillow, removable arms) for toileting and movement.

About 78 (65.5%) were sorrowful, 82 (68.9%) had early outrage, 36 (30.3%) suffered suicidal thoughts, and 21 (17.6%) suffered a lack of self-confidence following SCI (Table 2). There was no difference in sadness, early outrage and self-confidence between the two sexes. Only suicidal thoughts in women were significantly more than in men. Women tended to receive psychological counseling more than men (81.6% vs. 43.2%) (Table 2). There was no relationship between

employment and either sadness, suicidal thoughts or self-confidence.

A lack of diagnostic and therapeutic facilities in their home towns made individuals with SCI, 66 (56.4%), travel long distances to reach Tehran or other major cities, leading to accommodation problems for 58 (54.7%), with men facing this problem more than women (Table 2).

Getting physician appointments and enduring long wait times in the doctors' waiting rooms were problems for 25 (21.7%) and 82 (68.9%) persons with SCI, respectively. Fortunately, about 107 (89.9%) had insurance (Table 2).

The majority of individuals with SCI, 102 (85.7%), had good immediate family relationships, but only 30 (25.4%) had a relationship with other relatives or friends. More than half liked to communicate with other people with SCI (78 (65.5%)). Regarding entertainment facilities, only 22 (20.2%) reported having appropriate sport and recreation facilities.

Discussion

The aim of this study was to evaluate psychosocial outcomes in persons with SCI in Iran because these outcomes are associated with cultural issues.

In our study, the mean age of SCI onset was 28.1 ± 10.4 years, which was lower than what was reported in other studies. In two studies by Krause *et al.*, mean ages at SCI were 31.8 years (2–82 years)⁸ and 31.4 years.⁹ In the Saikkonen *et al.*'s study,¹⁰ it was 40 in males and 34 in females, and the incidence of SCI was highest among males and females aged 16–30 years.

The most prevalent causes of injury in our study were motor vehicle accidents followed by falling (in most cases due to occupational accidents), which was in accordance with other studies. However, we saw a higher rate of motor vehicle accidents (66.4% vs. 38–52%),^{8–11} which may reflect lower road and motor vehicle safety (for example, fewer vehicles with airbags).

There is a negative association between education level and SCI. According to selected findings of the 2011 NPHC in Iran, the rate of university education was 18.2% in men and 18.4% in women,¹² about 2% more than in our study population. It seems people who have lower levels of education are often involved in physical occupational activities such as construction or agricultural work in which the risk of falling and SCI is high. In contrast, people with a university education are more involved in administrative tasks that have a lower risk of SCI.

Families, and especially spouses, have an important role in supporting the mental, emotional, and physical

well-being of persons with SCI. They play an important role in taking care of these patients. Many of our participants were people who had never married, even though they were at the age of marriage and would have benefited from a spouse's emotional support. Therefore, providing conditions to facilitate marriage in patients with SCI could be considered as another management goal. Although the rate of never married men was more than in the population of the same age and sex (49.4% vs. 38%), the rate in women was similar (29% vs. 30%).¹² In DeVivo *et al.*'s study, 54.2% were single, and divorce rates were higher compared to the population of the same age and sex.¹³ In our study, 49.6% of participants were married; other studies showed that 37.7,¹⁴ 56.3,¹⁵ and up to 65.9% of persons with SCI were married.¹⁶ Charlifue *et al.* reported that the rate of married people with SCI changed from 31% (at five years) to 43% (at 25 years) after SCI.¹⁷ The rate of divorce in our finding was higher than in the normal population (2.5% vs. 0.7% in men and 5.3% vs. 1.4% in women).¹² Sexual dysfunction and financial problems may be associated with separation and divorce in our sample. It has been shown that changes in sexual life, such as decreased libido, emotional neglect, blaming, and nervousness, were the main problems in marital relationships.¹⁸ Kreuter *et al.* reported that in 14% of women with SCI, sexual interest had decreased.¹⁹ To confirm the supporting role of a patient's spouse, a study showed that marriage is a major source of well-being and social support.²⁰

Financial difficulties also affected persons with SCI in our study. This may be due to unemployment and the high costs of treatment and rehabilitation, leading to ignorance of health issues such as suitable sanitation, rehabilitation, living costs, and transportation. Most of our participants received financial support from their families. Only 4.2% received an allowance from governmental or non-governmental organizations, which was much lower than seen in studies from western countries. For example, in Kruse *et al.*'s study in the United States, 61% of the participants with SCI received payment assistance and the others were supported by family members.²¹

Employment was another factor that we investigated among our participants. Our results revealed that only 21% were successfully able to find a job, which is less than what was reported in other studies. In Krause *et al.*'s study, 52%⁶ and in Franceschini *et al.*'s study, 42.1%²² of participants with SCI were employed. Ottomanelli *et al.* in a review reported the average rate of any employment after SCI was approximately 35%.²³

The importance of employment in persons with SCI has been stated in many studies. Hay-Smith *et al.* reported that employment enhanced social communication, increased self-esteem, created financial stability and finally, provided a normal life for persons with SCI. Social supports and an appropriate work place are important factors in the return to employment process.²⁴ Botticello *et al.* showed that employment leads to social participation, but the feasibility of employment depends on variations in regional economic conditions.¹ Krause *et al.* evaluated the association of employment levels and the risk of mortality in persons with SCI.⁸ Their results showed that decreased weekly working time increased mortality levels. Income and education levels also had a significant effect on mortality. For instance, the mortality rate in lower income and lower socioeconomic classes of persons with SCI was high compared to the general population.²⁵ According to the findings there was no relationship between employment and either sadness, suicidal thoughts or low self-confidence that may otherwise be commonly thought to be due to the low frequency of employment.

Some studies have evaluated the factors affecting finding a proper job for persons with SCI. Their results showed that less severe injury, youngness, male gender, a higher education level, having a job before SCI, the ability to live alone, driving ability, community integration, access to transportation, social support, and having few psychosocial issues increased the probability of post-SCI employment.^{6,22,23,26,27} Our data showed no relationship between employment and the level of injury; this may be due to inadequate transportation options for both tetraplegic and paraplegic groups.

About 48.3% of patients had problems due to the default structure of their housing, requiring a ramp, lift or elevator to replace stairs, or needing renovations to provide adequate space to move about in a wheelchair. These problems prevent free movement within the home and safe egress from the home, greatly reducing autonomy and independence.

Persons with SCI need to have a private room for rest and relaxation and daily work. In our participants, the number of persons per housing unit was 5, with 48% having ≥ 5 persons per housing unit. However, according to the 2011 NPHC in Iran,¹² the number of persons per housing unit was 3.5, and 21% had ≥ 5 persons per housing unit, so we found a higher frequency of persons per house. In Soopramanien *et al.*'s study, cases of families living with parents, children, and other relatives in a house were common, and in

62.5% of cases, the number of members living in a house was three.²⁸

In our study, 31.1% of cases rented homes that cost more than rate of rented homes in the normal population in the 2011 NPHCI (26.6%). This would create many problems because of high rental prices and a lack of permission for renovation and modification of the rental homes. Home modifications are expensive yet critically important for independence, commuting, and social participation. However, these expenses are not included in the estimated fixed cost of persons with SCI. The most common changes in housing structure were adding ramps (83%), expanding doors (57%), reconstructing the bathroom (46%), and building an additional room in the house (43%).⁷

About 75.6% of total participants complained of transportation problems. Some of the persons with SCI wished to have a private car to drive and some wanted to make money by transporting passengers, but they would have had to modify their cars, which would have been expensive for them.²¹ Recently, improvements to streets and sidewalks have been done by the Mayor of Tehran and some other cities of Iran. Furthermore, suitable buses and proper stations have been prepared for people using wheelchairs.

According to the findings, there were no diagnostic or therapeutic facilities in many towns and villages, compelling individuals with SCI to move to large cities. This led to accommodation problems, more so in men than women. It seems that the injured women referred to other cities for treatment and recovery who did not have residence problems may have had relatives there. For cultural reasons, a woman cannot stay out at night, so injured women who could not find suitable accommodation in the larger cities did not travel for treatment. But men could be referred to other cities even if they did not have a place to stay; they could stay a night in the hospital campus or in the car. Sometimes the Welfare Organization of Iran provides facilities for their accommodation.

The majority of individuals with SCI had a good relationship with immediate family, especially with their mother or spouse (85.7%), but only 25.4% had a relationship with other relatives or friends. They preferred to have a relationship with their immediate family rather than communicating with relatives and friends because either they did not want to be seen in such state or they became sad when seeing that their friends were able to walk but they could not. Some of them stated that they did not like to go out due to transportation troubles and embarrassment. As a result, they usually stayed alone at home without any activity,

potentially leading to sadness, early outrage, suicidal thoughts, and a lack of self-confidence. The most common entertainment for persons with SCI was watching TV. More than half of them wished to communicate with other persons with SCI to talk and share their experiences.

Some of the persons with SCI stated the reasons for their sorrow were feeling that they were causing trouble, being useless, creating additional expenses, and being unable to cope with their problems. Suicidal thoughts in women were significantly more than in men. The women with SCI tended to have psychological counseling more frequently than the men with SCI, perhaps due to the sensitivity of women in general, or that women like to talk about their problems more than men.

Limitations

Our sample was derived from persons with SCI who were seeking and able to obtain medical appointments at their clinic. Regarding generalizability, most published studies about psychosocial issues in SCI are from North America and Europe.²⁹ There are few data on individuals with SCI elsewhere. Many of the psychosocial problems of persons with SCI are related to cultural issues, so their results may not generalize to other countries and cultures. This matter is true in our study too. However, these findings can be generalized to countries with similar cultural conditions.

With respect to content validity, the second part of the questionnaire pertained to psychosocial problems. However, some of the questions were related to the environment rather than individual social matters, and were used to assess “contextual” variables. In addition, we had limitations regarding test–retest reliability because we could not ask the patients with SCI to come back 2 weeks later to recomplete the questionnaire. We also had limitations regarding inter-rater reliability because the patients were easily exhausted, making lengthy questionnaire administration by multiple interviewers impractical.

Conclusion

People with SCI have multiple psychosocial issues that may vary by sex, stemming from unemployment, poor financial conditions and a lack of transportation. Psychological problems may include sadness, depression, irritability/anger, suicidal thoughts, and a lack of self-confidence. Common social issues are poor communication with friends and relatives and a lower rate of marriage. Being aware of these difficulties, we should provide an environment that can enhance

social participation, independence, and productivity for persons with SCI. Appropriate management could dramatically improve the quality of life of patients with SCI and their families.

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