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Assessment of the knowledge of paraplegic persons regarding self-care activity

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Abstract

Background and objective: Knowledge for getting self-care activity is the one important issue in the quality of life for a paraplegic person to live independently. This study aimed to assess the level of knowledge of persons with complete paraplegia regarding how to do self-care activity during daily living.

Methods: This cross-sectional study involved 58 cases with complete paraplegia out of 202 cases with spinal injuries that were admitted to the Emergency Management Centre in Hawler from 2008 to 2014. Information data on paraplegic persons was collected from August 15th to October 15th, 2014 through the interview by using a questionnaire.

Results: The majority of persons with paraplegia were young (32.8%), male (84.5%), married (58.6%), secondary school graduates (35.3%), unemployed (72.4%), having income exceeding the needs (50%) and live in the urban area (77.6%). Most of them had thoracic injury at level 9 to 12 (70.7%). The most common cause of injury was fall from high (41.4%) and the majority of readmissions were for bedsores (87%). The knowledge of paraplegic persons of self-care activity was at a high level (87.9%). Those living in urban areas had a significantly higher knowledge than those living in rural areas (93.3% *vs* 69.2%, $P = 0.019$).

Conclusion: Persons with paraplegia had good knowledge for self-care activity, but still need continuous knowledge and practical training. Urban areas need more help and knowledge.

Keywords: Paraplegia; Knowledge; Self-care activity.

Introduction

Spinal cord injury (SCI) creates a biographical disruption in an individual's life course and results in profound lifelong functional implications.[1] Paraplegia is a paralysis of the lower extremities associated with dysfunction of the bowel and bladder from a lesion in the thoracic, lumbar, or sacral regions of the spinal cord. The late complications that may occur after paraplegia include lower extremity edema, joint contractures, respiratory dysfunction and pain.[2] Rehabilitation after injury is to treat patients with paraplegia to achieve optimal independence and a satisfying lifestyle in their community. Fortunately, most patients return home after rehabilitation with a significant achievement in functional independence.[3] One of the most important problems of the contemporary civilization is an increasing number of accidents, including spinal cord injuries that very frequently result in persistent physical changes.[4] Persons with spinal cord injury needed for knowledge and prevention of pressure ulcers, skin checks, pressure-redistributing movements and knowledge of physiologic processes of wound healing.[5] In Canada, 14.3% of Canadians reported living with a disability. Specifically, an estimated 86,000 Canadians are living with a SCI.[1] It is estimated that the life expectancy of a patient injured at 40 years to be 28.3 years in the case of paraplegia.[6] A retrospective study done by Dahlberg et al. in Finland revealed that a total of 87.0% of the

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patients had complete spinal cord lesions and 64.9% were paraplegic.[7] Henn found that 12 of 16 patients with complete paraplegia in South Africa scored themselves as having more than 80% knowledge of wheelchair and their equipment on discharge from the hospital.[8] The knowledge for improving self-care regarding paraplegic persons is very important. The paraplegic persons should be considerate to as an active member, if they are trained properly. It is shown by many studies that the higher knowledge of paraplegic persons will be more active in the life and the fewer complications occur like bedsores, autonomic dysreflexia, infections, spasticity and contractures, calcium depletion and deep venous thrombosis.[5,7-9] Thus, a major aspect of nursing care is teaching patients and their families about these complications and about strategies to minimize this risk. Urinary tract infection, contractures, infected pressure ulcers, and sepsis may necessitate hospitalization.[2] Therefore, this study was conducted to explore the level of knowledge among the paraplegic person regarding self-care and prevention of complications and find out the association between demographic and clinical data with the score of knowledge.

Methods

This cross-sectional study was carried out in Erbil. Persons with complete paraplegia as a result of SCI, diagnosed by the neurosurgeon in Emergency Management Center (EMC) and discharged between January 1st, 2008 and January 1st, 2014 were included in the study. Among the 202 cases of SCI, 79 had complete traumatic paraplegia. Only 58 cases participated in the study because the addresses and phone numbers of 9 cases were changed and 8 cases were out of the Kurdistan Region while the remained 4 cases refused to participate in the study. The other 123 out of these 202 cases were not complete paraplegia with 53 cases were not complete paraplegia (monoplegia or paraparesis), 35 cases were tetraplegia, 7 cases died during admission or after discharge from EMC, 6 cases were under the age of 18 years old, 5 cases were non-traumatic SCI, 4 cases had brain injury or fractures in the upper or lower limbs in addition to having SCI and 3 cases have not completed rehabilitation course in the EMC. The inclusion criteria for selecting study participants included patients with a complete traumatic SCI from thoracic 1 to lumber 5 (paraplegia), male and female patients above the age of 18 years and all paraplegic patients who were discharged from EMC. The exclusion criteria for selecting the sample of the study was paraplegic patients associated with head injury, patients with non-traumatic SCI, decreased the range of movement of any joints of the upper or lower limbs for any reasons and fractures/injuries to the upper limbs or the lower limbs. Verbal consent was taken from each person who was interviewed. The study was approved by the Research Ethics Committee of the College of Nursing at Hawler Medical University. Institutional approval for conducting the study was obtained from the EMC and General Directorate of Health in Erbil. Confidentiality regarding personal issues of the person was ensured. The phone numbers and addresses of the participants were taken from the EMC and spinal cord injury unit. The participants were invited to participate in the study through contacting them by phone. In addition to getting the clinical information from EMC (spinal cord injury unit) and paraplegic chart, an appointment with the person was made before the home visit. Each person spent approximately 30 to 40 minutes to complete the response for all parts of the questions. Data was collected from August 15th to October 15th, 2014. Data was collected through interview technique and the usage of a questionnaire. The reason behind including these questions to the questionnaire was those teaching and advising program are applicable in the SCI Unit of EMC here in

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Hawler City, that consisted of three parts based on the research objectives. The socio-demographic part included data about age, sex, marital status, educational level, occupation status after injury, personal income, type of housing and residential area. The clinical information part included information about the level of injury, the cause of injury, duration in months since discharge, the number of admissions to the EMC and reason of readmissions. It was recorded according to the person's admission chart of EMC. The knowledge assessment part consisted of 17 questions with two options 'Yes' (good) or 'No' (poor) questions. This part was used to assess the general knowledge of paraplegic persons regarding SCI and how to conduct self-care during daily living activity. The final part was to assess the knowledge of paraplegic persons by knowing maximum and the minimum point of percentage score of each question and the scores of general questions by formulae calculating of percentage all yes and all no question differently (Q1+Q2+Q3+Q4…….+Q17 ÷ 17). The score of poor knowledge ranged from 1% - 50% and good knowledge ranged from 51% - 100%. The data was analyzed through using descriptive, inferential statistics by the statistical package for the social sciences (version 19). The frequencies, percentages, and Chi-Square were used in the study. A P value of ≤0.05 was considered statistically significant.

Results

Table 1 shows that the majority of the study participants (32.8%) were in the age group 28-37 years old. The mean age (±SD) of the participants was 33.58 ± 9.607 years. Most of the study participants were male (84.5%), married (58.6%), secondary school graduates (35.3%), not employed (72.4%), having income exceeding the needs (50%) and from urban areas (77.6%).

Table 1: Socio-demographic characteristics of the samples (N= 58).

Socio-demographic data		No.	(%)
Age group (years)	18-27	17	(29.3)
	28-37	19	(32.8)
	38-47	17	(29.3)
	≥48	5	(8.6)
	M ± SD	34.21 ± 10.548	
Sex	Male	49	(84.5)
	Female	9	(15.5)
Marital status	Single	23	(39.7)
	Married	34	(58.6)
	Widower	1	(1.7)
Formal years of education	Illiterate	11	(21.6)
	Can read and write	5	(9.8)
	Primary school	14	(27.5)
	Secondary school	18	(35.3)
Occupational status	Employment	16	(27.6)
	Unemployment	42	(72.4)
Income	Insufficient	26	(44.8)
	Sufficient	3	(5.2)
	Exceed needs	29	(50)
Type of Housing	Owned	20	(34.5)
	Rented	10	(17.2)
	Shared	28	(48.3)
Residential area	Urban	45	(77.6)
	Rural	13	(22.4)

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Table 2 shows the clinical characteristics of the 58 paraplegic persons. The majority of the participants had an injury between the levels T9 to T12 (70.7%). The cause of injury for most of the sample was fall from height (41.4%). The majority of the participants had been admitted to the EMC only one time (69%). The most common reason for readmission was for bedsore (87%).

Table 2: Clinical characteristics of the study samples (N=58).

Clinical Characteristics		**No.**	**(%)**
Level of injury	Thoracic injury (T)	58	(100)
Thoracic injury	1-4	4	(6.9)
	5-8	13	(22.4)
	9-12	41	(70.7)
Cause of injury	Road traffic accident	21	(36.2)
	Fall from height	24	(41.4)
	Fall of heavy object on back	7	(12.1)
	Bullet injuries	6	(10.3)
Duration in months since discharge	2-16	14	(24.1)
	17-31	18	(31)
	32-46	11	(19)
	47-61	15	(25.9)
Number of admissions to the EMC	First admission	40	(69)
	Second admission	10	(17.2)
	Third and more admission	8	(13.8)
Reason of Readmission (n=18)	Bed sore	14	(87)
	Rehabilitation for mobility	2	(6.5)
	Bladder obstruction	2	(6.5)

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Table 3 shows the knowledge level of the participants regarding self-care activities. The highest knowledge score was in the skin management activity knowledge; in the question of “Are you aware of the danger of zips, seams, clippers, etc.?” (100%). The lowest knowledge score was in the home and mobility activity knowledge; to the question "Do you know the reason for standing regularly?" (75.9%).

Table 3: Patients’ knowledge about self-care activities (N=58)

Questions	Level of Knowledge			
	Yes		No	
	No.	(%)	No.	(%)
Eating Activity:				
Do you know the amount of fluid per day you should drink?	55	(94.8)	3	(5.2)
Do you know well-balanced diet like fruit, vegetable and brown bread are important?	52	(89.7)	6	(10.3)
Do you know which food and drink is best and which is bad for your health?	54	(93.1)	4	(6.9)
Skin Management Activity:				
Do you know how to examine your skin, what to look for, and where to look?	54	(93.1)	4	(6.9)
Do you know how often and for how long to relieve the pressure from areas that at risk of pressure sore?	53	(91.4)	5	(8.6)
Are you aware of the danger of hot objects (hot water, and the sun)?	56	(96.6)	2	(3.4)
Are you aware of the danger of zips, seams, clippers, etc.?	58	(100)	0	(0)
Bladder Management Activity:				
Can you recognize that you are not passing urine?	54	(93.1)	4	(6.9)
Can you observe your urine output hourly?	53	(91.4)	5	(8.6
Can you recognize the early signs of bladder infection?	55	(94.8)	3	(5.2)
Bowel Management Activity:				
Do you know the problems of bowel movement?	51	(87.9)	7	(12.1)
Do you know the dose and type of suppositories if you should use?	54	(93.1)	4	(6.9)
Home and mobility Activity:				
Do you know your wheelchair make and model?	48	(82.8)	10	(17.2)
Do you know how to maintain your wheelchair?	48	(82.8)	10	(17.2)
Do you know how and where to replace your wheel-chair?	47	(81)	11	(19)
Do you know the reason for standing regularly?	44	(75.9)	14	(24.1)
Do you know how often and for how long to use your standing frame/device?	47	(81)	11	(19)
Total	51.94	(89.55)	6.05	(9.93)
Overall Level of Knowledge regarding Yes (Good) = (89.55%)				
Overall Level of Knowledge regarding No (Poor) = (9.93%)				

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Table 4 demonstrates the association between the levels of knowledge with socio -demographic characteristics. Those living in urban areas had a significantly higher knowledge than those living in rural areas (93.3% vs. 69.2%, *P* = 0.019). There was no statistically significant association between the level of knowledge and the other socio-demographic characteristics.

Table 4: Association Knowledge with socio-demographic characteristics (N= 58).

Socio-demographic characteristic		Knowledge Level				Total	*P* value
		Poor		Good			
		No.	(%)	No.	(%)		
Age group	18-27	3	(17.6)	14	(82.4)	17	
	28-37	1	(5.3)	18	(94.7)	19	0.654
	38-47	2	(11.8)	15	(88.2)	17	
	=>48	1	(20)	4	(80)	5	
Sex	Male	6	(12.2)	43	(87.8)	49	0.924
	Female	1	(11.1)	8	(88.9)	9	
Marital status	Single	1	(4.3)	22	(95.7)	23	
	Married	6	(17.6)	28	(82.4)	34	0.297
	Widower	0	(0)	1	(100)	1	
Formal years of education	Illiterate	3	(33.3)	6	(66.7)	9	
	Can read and write	0	(0)	3	(100)	3	
	Primary school	3	(8.8)	31	(91.2)	34	0.287
	Secondary school	1	(11.1)	8	(88.9)	9	
	Higher Education graduate	0	(0)	3	(100)	3	
Occupational status	Employment	0	(0)	16	(100)	16	0.082
	Unemployment	7	(16.7)	35	(83.3)	42	
Income	Insufficient	4	(15.4)	22	(84.6)	26	
	Sufficient	0	(0)	3	(100)	3	0.683
	Exceed needs	3	(10.3)	26	(89.7)	29	
Type of Housing	Owned	3	(15)	17	(85)	20	
	Rented	2	(20)	8	(80)	10	0.498
	Shared	2	(7.1)	26	(92.9)	28	
Residential area	Urban	3	(6.7)	42	(93.3)	45	
	Rural	4	(30.8)	9	(69.2)	13	0.019
	Total	**7**		**51**		**58**	

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There was no statistically significant association between the levels of knowledge and any clinical variables (Table 5).

Table 5: Association Knowledge according to Clinical characteristics (N= 58).

Clinical characteristic		Knowledge Level				Total	*P* value
		Poor		Good			
		No.	(%)	No.	(%)		
Thoracic injury	1-4	1	(25)	3	(75)	4	
	5-8	3	(23.1)	10	(76.9)	13	0.225
	9-12	3	(7.3)	38	(92.7)	41	
Cause of injury	Road traffic accident	3	(14.3)	18	(85.7)	21	
	Fall from height	3	(12.5)	21	(87.5)	24	
	Fall of heavy object on back	1	(14.3)	6	(85.7)	7	0.812
	Bullet injuries	0	(0)	6	(100)	6	
Duration in months since discharge	2-16	1	(7.1)	13	(92.9)	14	
	17-31	3	(16.7)	15	(83.3)	18	
	32-46	2	(18.2)	9	(81.8)	11	0.687
	47-61	1	(6.7)	14	(93.3)	15	
Admissions to the EMC	First admission	7	(17.5)	33	(82.5)	40	
	Second admission	0	(0)	10	(100)	10	0.167
	Third and more admission	0	(0)	8	(100)	8	
Reason of readmission (n=18)	Bed sore	0	(0)	14	(100)	14	
	Rehabilitation for mobility	0	(0)	2	(100)	2	0.310
	Bladder obstruction	0	(0)	2	(100)	2	
	Total	**7**		**51**		**58**	

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Discussion

This study assessed the level of knowledge of the paraplegic persons regarding their daily living needs and activity. Of 17 items, the highest knowledge score of paraplegic persons was in the question "Are you aware of the danger of zips, seams, clippers, etc.", and the lowest score was in the question "Do you know the reason for standing regularly?" The study participants had good knowledge about the questions related to skin management activity. These improvements could be attributed to the fact that the persons would apply the knowledge they learned by the medical and nursing staffs in the hospital setting onto the real-life situations. Hence, a longer period of follow-up would be beneficial to give a clearer profile on persons' functional status over time. This result was supported by a study from South Africa where 12 of 16 patients scored themselves as having more than 80% knowledge regarding equipment and the maintenance with ten patients scoring themselves more than 90%. That study also reported a mean score of 85 and a median of 98 reflected well on the rehabilitation team and program.[8] The result of the current study was also similar to a prospective cohort study conducted by Rodriguez and Garber in the USA who presented a list of prevention strategies to 62 patients with spinal cord injury about development and preventive care pressure ulcer (PU) and asked to rank them from 'very important' to 'not important. The result showed that skin inspection was 'very important' and achieved 69% of the subjects and achieved 74% about rated weight shifts and turns as very important.[10] However, the result of the current study disagrees with a study conducted by Thietje et al. that reported less than 50% of SCI patients had good knowledge about bladder management and pressure ulcers after being discharged.[11] No significant association was noticed in this study between the levels of knowledge with all the parts of socio-demographic characteristics except for the residential areas of the participants. This may be due to the fact that most of the cases of the study were young, male and married. A young person is more active than the old one; a male person is more capable of doing the activities physically and the married (couple) have more support for performance of the activities than the single inside the family. The result of the current study also agrees with Marcel et al. study for functional outcome of SCI in the Netherlands who conducted research on 157 patients in eight rehabilitation centers. That study performed a regression analysis to examine the influence of all injury-related factors like age, gender, and etiology and showed no significant relationships.[12] No significant association was noticed between the clinical characteristics of the patient with the levels of knowledge of paraplegic persons including thoracic injury, the cause of injury, and duration in months since discharge, the number of admissions in the EMC and the reason of 2nd and 3rd readmissions. The reason having such non -significant difference is that the level of injury of the majority of the participants was between T9-T12, i.e. those persons have the ability to conduct activities better than those having a spinal cord injury at a level above thoracic one (tetraplegic persons) as the later are dependent. Moreover, the cause of injury will not affect knowledge activities. It is also known that those who have been affected by traumatic for a longer duration have more experience or are more familiar with the situation than those who faced it recently, taking into consideration that most of the persons interviewed in this study are from the classification that been affected for a long time. Another reason for having a non-significant difference is that the majority were admitted only once to rehabilitation and did not come back. Such result is supported by Henn study from South Africa who reported neither gender (P = 0.32) nor the level of injury (P = 0.35) or cause of injury (P = 0.74) had any

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significant impact on the functional independence of admission scores.[8] Besides, the result of the current study is also supported by Curt et al. study that involved 70 acute and chronic SCI in Switzerland. Follow-up examinations of the motor evoked potentials recordings (6 months post trauma) did not show a significant change of latencies or amplitudes.[13] The result of the current study is also supported by Harvey et al. who conducted a randomized crossover trail study on ten paraplegic subjects who were selected from a group of volunteers with complete lesions between T9- T12 in Australia. They reached the conclusion that all the subjects had sustained motor complete lesions between T9-T12 and didn't have significant lower limb musculoskeletal contractures.[14] Regarding readmission of the paraplegic persons, the result of the current study is supported by another study conducted by Bloemen-Vrencken et al. on 62 adults with SCI in the first year after discharge in Netherlands and reported no significant differences in readmission rates among groups.[15] However, the current study disagrees with another study conducted by Garber et al. in Houston veteran, America that found significant relationships between outcome and stage of ulcer and rank of the number of ulcers.[16] Not having a statistically significant association between the level of knowledge and majority of the variables could be due to of the limitations of the study like the small sample size of participants. Other limitations of this study include lack, missing and change of address and telephone number of some participants, the difficulty of setting appointments with the paraplegic persons especially for those who were out of Erbil city and lack of literature about the study of SCI in Kurdistan Region.

Conclusions

All paraplegic persons had a high score of knowledge about self-care activity, but they needed to identify effective strategies for translating knowledge to practice activity, and no significant relationship was found except the residential area with the level of knowledge.

Conflicts of interest

The authors report no conflicts of interest.

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