P-81

Status of Physical Activity and Exercise among Individuals with Spinal Cord Injury in Korea: A Descriptive Analysis

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Introduction

- Individuals with spinal cord injury (SCI), beyond acute treatment, reintegration into their homes and communities is essential.
- However, there appears to be a lack of exercise opportunities for people returning to the community and this can lead to difficulties in engaging in physical activity.
- Our aim is to investigate the participation in physical activity and social engagement of people with spinal cord injury living in the community, based on a survey.

Methods

- A total of 109 individuals with SCI were recruited.
- The questionnaire included quality of life, subjective health perception, current physical activity status, exercise participation, and impact of complications on daily life.
- Complications were defined as spasticity, mental status, urinary/bowel dysfunction, pain, orthostatic hypotension, autonomic dysreflexia, pressure injuries, deep vein thrombosis and pulmonary thromboembolism.

Results

- Of the 109 individuals with SCI, 77 (70.64 %) were male and 32 (29.36 %) female. About half, 50 (45.87 %), had a monthly income of less than 2 million won. According to the American Spinal Injury Association impairment scale (AIS), 30 (27.52 %) were classified as A, 12 (11.01 %) as B, 17 (15.60 %) as C and 50 (45.87 %) as D. Gender, age, monthly income had no significant effect on the exercise status of the participants.
- Exercise participation was not significantly different according to the type of injury. However, as AIS severity increased, exercise participation decreased significantly (Table 1).
- Although no differences were found in subjective health status according to physical activity, people who engaged in physical activity reported less impact of complications on daily functioning, less pain, and differences in activities of daily living and mobility (Table 2).
- However, people with severe AIS scale or poor subjective health perception were less likely to use local community exercise facilities (Table 3).
- Reasons for not using community exercise facilities included concerns about health status or accidents, and issues related to mobility and accessibility. Lack of mobility and accessibility were more frequently cited by people with complete paralysis than by people with incomplete paralysis (Fig. 1A). People expressed a need for support in accurately diagnosing their condition, determining the intensity of exercise and developing exercise plans, followed by the provision of exercise-related information and assistance with transportation (Fig. 1B).

Table 1. The correlation between personal characteristics and self-exercise status

Variables	Categories	Exercise group n (%)	Non-exercise group n (%)	*p*-value
Gender	Male	49 (66.22)	28 (80.00)	0.140
	Female	25 (33.78)	7 (20.00)	
Age	19~28	4 (5.41)	0 (0.0)	0.134
	29~38	0 (0.0)	1 (2.86)	
	39~48	11 (14.86)	6 (17.14)	
	49~58	19 (25.68)	15 (42.86)	
	59~68	27 (36.49)	7 (20.00)	
	>69	13 (17.57)	6 (17.14)	
Marriage status	Single	13 (17.57)	9 (25.71)	0.375
	Married	52 (70.27)	21 (60.00)	
	Cohabiting	1 (1.35)	0 (0.0)	
	Divorced or Seperated	5 (6.76)	5 (14.29)	
	Widowed	3 (4.05)	0 (0.0)	
Income level (million won)	Under 2	29 (39.19)	21 (60.00)	0.216
	2~3.99	24 (32.43)	5 (14.29)	
	4~5.99	10 (13.51)	4 (11.43)	
	5~7.99	8 (10.81)	5 (14.29)	
	8~9.99	2 (2.70)	0 (0.0)	
	Over 10	1 (1.35)	0 (0.0)	
Reason of injury	Trauma	39 (52.70)	26 (74.29)	0.032*
	Disease	35 (47.30)	9 (25.71)	
Level of injury	Cervical	38 (51.35)	20 (57.14)	0.831
	Thoracic	28 (37.84)	12 (34.29)	
	Lumbar	8 (10.81)	3 (8.57)	
	Sacral	0 (0.0)	0 (0.0)	
ASIA impairment scale	A	18 (24.32)	15 (42.86)	0.018*
	B	6 (8.11)	6 (17.14)	
	C	11 (14.86)	6 (17.14)	
	D	39 (52.70)	8 (22.86)	

n; numbers, Asterisk means statistically significant (p<0.05).

Table 2. Comparison between patient's status and quality of life according to exercise participation

		Exercise group (n=74)	Non-exercise group (n=35)	*p*-value
Impact of complications on daily life	No problem at all	6 (8.11)	1 (2.86)	0.012*
	Slightly problematic	9 (12.16)	1 (2.86)	
	Average	9 (12.16)	2 (5.71)	
	Slightly problematic	26 (35.14)	7 (20.00)	
	Severely problematic	24 (32.43)	24 (68.57)	
Subjective health Perception	Very good	0 (0.0)	0 (0.0)	0.329
	Good	4 (5.4)	3 (8.6)	
	Fair	38 (51.4)	12 (34.3)	
	Poor	25 (33.8)	14 (40.0)	
	Very poor	7 (9.5)	6 (17.1)	
Pain score		4.82 ± 2.74	6.11 ± 2.27	0.017*
Score for activity and participation	Activities of daily living	3.18 ± 1.11	2.57 ± 1.12	0.009*
	Mobility	3.15 ± 1.19	2.55 ± 1.10	0.013*
	Function and participation	3.20 ± 1.08	2.78 ± 0.98	0.055

Values are given as mean ± standard deviation and median, Asterisk means statistically significant (p<0.05).

Table 3. The correlation between experience with community exercise facilities and characteristics

Experience with community exercise facilities	Subjective health perception					ASIA impairment scale				
	Good (%)	Fair (%)	Poor (%)	Very poor (%)	*p*	A (%)	B (%)	C (%)	D (%)	*p*
Yes (n=33)	2 (28.57)	22 (44.00)	7 (17.95)	2 (15.38)	0.033*	5 (15.15)	2 (16.67)	4 (23.53)	22 (46.81)	0.013*
No (n=76)	5 (71.43)	28 (56.00)	32 (82.05)	11 (84.62)		28 (84.85)	10 (83.33)	13 (76.47)	25 (53.19)	

ASIA; American Spinal Injury Association, n; numbers, Asterisk means statistically significant (p<0.05).

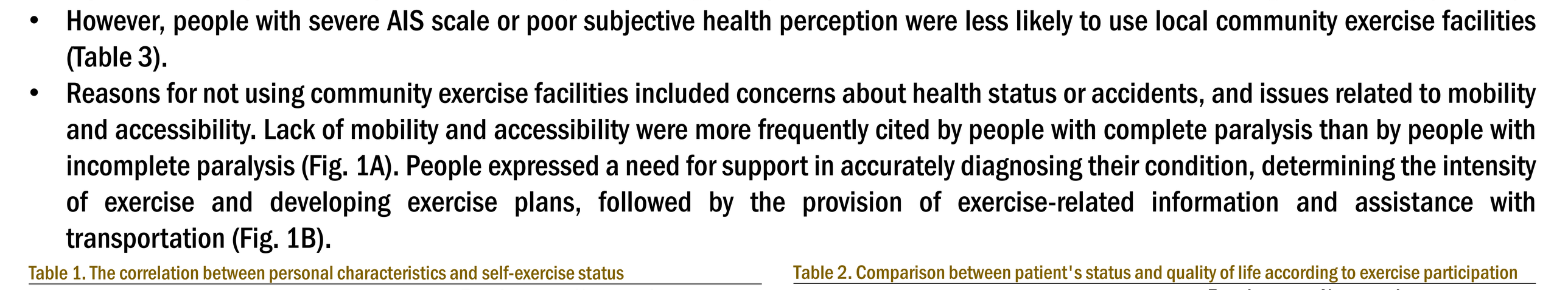

Figure 1. A. Reasons for not using local community exercise facilities. A-1. Complete injury group. A-2. Incomplete injury group. B. Support needed for exercise as reported by respondents.

Conclusion

- Despite perceiving less pain and fewer impact from complications from exercise, people with severe AIS tend to underuse local community exercise facilities. They cite concerns about their health, accidents, mobility and accessibility issues as reasons for not using these facilities. To improve this situation, social interventions such as support for exercise facilities and mobility aids, as well as diagnosis of conditions and development of exercise plans, are needed.

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