Assessing the Effectiveness of a Travel Training Program for Individuals Sustained Traumatic Spinal Cord Injury

Shu Cole, PhD; Chenggang Hua, PhD; Weixuan Wang, MS
Department of Health and Wellness Design, Indiana University School of Public Health-Bloomington, Bloomington, Indiana

BACKGROUND

Individuals who have recently sustained a spinal cord injury (SCI) often face significant challenges and obstacles when it comes to engaging in travel-related activities, particularly in unfamiliar environments. They may lack the necessary skills, motivation, and confidence to navigate and adapt to new places. Thus, systematic travel training programs (TTPs) are needed to best support people with SCI (PwSCI) in developing essential travel skills. However, there is a notable scarcity of research and information regarding effective strategies and interventions for systematic travel training for PwSCI.

PURPOSE

Guided by the self-determination theory, the study seeks to examine the effectiveness of a TTP implemented at the Shepherd Center by evaluating its impacts on the travel needs satisfaction of autonomy, competence, and relatedness among individuals with SCI.

SIGNIFICANCE

The findings of the study should offer valuable insights into the effectiveness of the program in meeting the travel needs satisfaction of autonomy, competence, and relatedness for PwSCI. Consequently, researchers can further refine and tailor the program to better support the unique needs and aspirations of PwSCI.

METHOD

- **Design:** Two-group pretest-posttest quasi-experimental design
- **Sample:** 1) 13 patients with new SCI who partook in the TTP; 2) 13 patients with new SCI who didn't partake in the TTP (control).
- **Measures:** *Competence*: overall capability for traveling long distances (5 items); *Autonomy*: freedom and control (9 items); *Relatedness*: available support and travel companions (12 items)
- **Analysis:** 1) Descriptive statistics; 2) ANCOVA to examine the between-group differences and paired samples T-test for within-group differences to evaluate the TTP's effectiveness.

Table 1. Sample Items for Each Variable

Variables	Measurements	Cronbach's α	CR	AVE
Competence	1) I feel capable of staying overnight at the place I visit	0.76	0.938	0.754
	2) I feel confident about traveling long distances following my SCI			
	3) I feel accomplished after traveling long distance			
	4) I feel capable about dealing with difficulties I encounter during travel			
	… …			
Autonomy	1) I'd feel free to decide when and to where I want to travel	0.714	0.909	0.541
	2) My travel decisions would reflect what I really want			
	3) I'd feel in control while traveling regardless of whether the service/place is accessible to me or not			
	… …			
Relatedness	1) There would be someone around to help me travel if I need	0.813	0.927	0.522
	2) I'd feel comfortable asking for help from others during travel			
	3) I'd be concerned that people I meet during travel will not engage with me (reversed)			
	… …			

CONCLUSIONS

- Compared to the control group, a greater improvement in travel competence was observed in the training group, suggesting the efficacy of the travel training program in enhancing participants' knowledge and skills of overnight and long-distance travel, as well as their problem-solving capabilities during travel.
- For participants of the travel training program, their perceived autonomy was significantly enhanced after completing the training program, indicating the effectiveness of the program in promoting the sense of independence and control in the context of travel.
- The travel training program did not have a significant impact on participants' sense of connection and social relationships related to travel.
- The TTP program seems to have been primarily focused on individual skills and abilities and may need to improve by fostering social interactions and relationships within the travel context.

RESULTS

Demographic Analysis

- For the overall sample, most of the participants were male (76.9%), white (65.4%), and never married (53.8%).
- The largest age group was 18 to 30 years old (42.3%).
- Almost half of the participants (46.2%) reported a family income of ≥$100,000, while 15.4% had less than $50,000.

Table 2. The Comparation of Demographic Profile of Two Groups

Variables	TTP Group		Control Group	
	Category	Frequency (%)	Category	Frequency (%)
Age (y)	18-30y	7(53.8%)	18-30y	4(30.8%)
	31-40y	1(7.7%)	31-40y	6(46.1%)
	41-50y	4(30.8%)	41-50y	1(7.7%)
	51-60y	1(7.7%)	51-60y	2(15.4%)
Gender	Men	8(61.5%)	Men	12(92.3%)
	Women	4(30.8%)	Women	1(7.7%)
Race/Ethnicity	White, Caucasian	6(46.2%)	White, Caucasian	11(84.6%)
	Black, African American	6(46.2%)	Black, African American	2(15.4%)
Family Household Income	Less than $50,000	0(0.0%)	Less than $25,000	4(30.8%)
	$50,000 – $99,999	1(7.7%)	$50,000 – $99,999	1(7.7%)
	$100,000 and above	7(53.9%)	$100,000 and above	5(38.5%)

ANCOVA Test

- Compared to the control group, the training group showed a greater improvement in their needs satisfaction for competence ($F_{(1, 23)}$=5.75, p=.02).
- No significant differences were found between the two groups in their needs satisfaction for autonomy and relatedness.

Table 3. Descriptive Statistics and ANCOVA Results

	Pretest		Posttest			Condition effect		
	M	SD	M	SD	Adj M	F	p	Partial eta^2
Competence						5.75	0.02*	0.20
Control	3.89	0.70	3.78	0.70	3.56			
Treatment	3.25	0.78	3.97	0.55	4.17			
Autonomy						1.39	0.26	0.09
Control	3.38	0.42	3.65	0.66	3.57			
Treatment	3.30	0.41	3.75	0.32	3.77			
Relatedness						1.04	0.32	0.06
Control	4.01	0.24	4.08	0.61	4.13			
Treatment	3.89	0.59	3.95	0.38	3.98			

*Notes. M = Mean, SD = Standard Deviation, Adj = Adjusted, * p < .05.

Paired Samples T-Test

- TTP participants reported a significant enhancement in their travel needs satisfaction for autonomy (t=-2.546, p=.016) and competence (t=-3.885, p=.001) after completing the program.
- No significant change was observed in participants' travel needs satisfaction for relatedness (t=-.382, p=.355).

Table 4. Paired Samples T-Test

		Paired Differences					t	df	Significance
		Mean	Std. Deviation	Std. Error Mean	95% C.I. of the Difference Lower	Upper			One-sided p
Pair 1	Pre_Autonomy Post_Autonomy	-.41111	.51065	.16148	-.77641	-.04581	-2.546	9	.016*
Pair 2	Pre_Competence Post_Competence	-.72308	.67101	.18611	-1.12857	-.31759	-3.885	12	.001**
Pair 3	Pre_Relatedness Post_Relatedness	-.06061	.52585	.15855	-.41387	.29266	-.382	10	.355

*Notes. * p < .05, ** p < .01, *** p < .001.

REFERENCES

Cole, S., Whiteneck, G., Kilictepe, S., Wang, W., Hoback, N. G., & Zhao, H. (2020). Multi-stakeholder perspectives of environmental barriers to participation in travel-related activities after spinal cord injury. *Disability and Rehabilitation*, *44*(5), 672-683.

Gassaway, J., Sweatman, M., Rider, C., Edens, K., & Weber, M. (2019). Therapeutic recreation outcomes during inpatient SCI rehabilitation: Propensity score analysis of SCIRehab data. *Therapeutic recreation journal*, *53*(2), 99-116.

Hua, C., & Cole, S. (2023). Influence of Psychological Factors on Participation and Life Satisfaction in the Context of Travel and Tourism after Spinal Cord Injury. *International Journal of Environmental Research and Public Health*, *20*(1), 516.

Jörgensen, S., Iwarsson, S., & Lexell, J. (2017). Secondary health conditions, activity limitations, and life satisfaction in older adults with long-term spinal cord injury. *PM&R*, *9*(4), 356-366.

Moura, A., Eusébio, C., & Devile, E. (2022). The 'why'and 'what for'of participation in tourism activities: travel motivations of people with disabilities. *Current Issues in Tourism*, 1-17.

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