Causal Model of Psychological Empowerment Among People With Spinal Cord Injury in Thailand

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The purpose of this study was to develop and evaluate a causal model illustrating the relationships of age, education, physical impairment duration, social support, functional ability, and self-esteem with psychological empowerment in persons with spinal cord injury. Participants were 260 individuals admitted to a hospital in Thailand. Data were analyzed using path analysis (with the maximum likelihood estimation technique) in Linear Structural Relationship (LISREL). The study results revealed that age and education did not significantly influence psychological empowerment. However, self-esteem had a direct effect on psychological empowerment, whereas physical impairment duration, functional ability, and social support had indirect effects through self-esteem. These four predictors explained 64% of the total variance in this model of psychological empowerment for people with spinal cord injury. These findings can be used as a guideline for developing appropriate interventions to promote psychological empowerment among Thais with spinal cord injury.

he pathology of spinal cord injury (SCI) influences the physical, psychological, economic, and social aspects of patients' lives. The physical effects of the condition involve loss of movement, control, sensation, urination and feces excretion, sexual function, respiratory system, thermoregulation, and spasticity. These effects can, in turn, produce complications such as joint contractions, pressure ulcers, urinary tract infection, constipation, autonomic dysreflexia, deep vein thrombosis, postural hypotension, atelectasis, and pneumonia (Sisto et al., 2009). It also has numerous psychological effects, including severe grief, low self-esteem, discouragement, hopelessness, a negative self-concept, and negative self-image (Craig et al., 2009; Khazaeipour et al., 2014), including self-directed anger due to physical disability, all of which can affect work competency and income, even as medical expenses increase. Furthermore, being limited to a wheelchair presents an obstacle to social interaction, which often leads to social isolation.

The social impact of an SCI depends on the degree of paralysis. Illness-related complications might arise

during long-term hospitalization or after discharge due to poor self-care, thus leading to hospital readmission. Refusing rehabilitation can lead to a slow recovery and greater dependency on others. As for the economics of SCI, it is considered a social burden in Thailand because the government provides medical and healthcare services to all persons with disabilities.

Implementing appropriate, comprehensive nursing care guidelines should help promote the recovery of persons with SCI. Most studies have focused on how healthcare providers put these guidelines into practice. To fully understand the needs of people with SCI in care, healthcare providers should ensure that nursing care programs take into consideration the lifestyles and cultural contexts of people with SCI. However, failing to include patients with SCI in the care process might result in people with SCI feeling dependent on their healthcare providers, which can lead to a loss of selfrespect and dignity. Plans that are developed by the healthcare provider in collaboration with the patient are more likely to be followed as the first step to succeeding in a new lifestyle after discharge.

Healthcare providers can support the development of psychological empowerment of people with SCI by ensuring that the health education and recommendations around self-care after discharge are tailored to the needs, background, and level of understanding of the person with SCI. Guidelines that promote psychological

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The authors declare no conflict of interest.

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empowerment can support persons with SCI to adapt new lifestyles and develop the confidence and self-care habits necessary to adhere to nursing care guidelines (Fotoukian et al., 2014). Nurses play an important role in the care of people with SCI, and an effective nursing care program can promote and support the psychological empowerment of these people. Thus, the present study used path analysis to examine the factors that influence psychological empowerment among people with SCI.

Literature Review

The literature review on the factors related to psychological empowerment suggested that age might be a significant factor affecting psychological empowerment (Hara et al., 2014). Age produces both physical and psychological changes. In particular, maturity, situational adaptability, and individual coping strategies improve with age (Chiauzzi et al., 2016). With physical development from childhood to adulthood, age brings changes in thoughts, attitudes, perceptions, and self-assessments; however, this development tends to reverse, as people enter old age. Adults tend to have greater empowerment than children and elderly adults (Tol et al., 2012).

Education leads to improvements in intellectual capacity and health. Education and self-esteem (and indicator of psychological empowerment) are positively correlated; education and capacity building are important components of the empowering process (Reshadat et al., 2014). Educated persons are more empowered (Chiauzzi et al., 2016; Shearer, 2004; Tol et al., 2013), and persons who are empowered are more likely to actively understand and influence their own lives and health status and thus better able to overcome their disease (Tol et al., 2013).

Psychological empowerment can develop gradually over the duration of physical impairment (Isaksson et al., 2015). In the long term, patients tend to become more empowered to manage their chronic disease if adequately informed (Tol et al., 2012). However, SCI tends to be a sudden illness, not chronic, causing immediate loss of physical abilities; given a short duration of physical impairment, people with SCI are less likely to feel empowered and less likely to accept their condition (Tol et al., 2013).

Functional ability is another factor that influences psychological empowerment. The ability of people with SCI to perform the activities of daily living (ADL)-feeding, bathing, grooming, dressing, toileting (emptying bowel or bladder), transferring, mobility, and using stairs-depends on the extent of injury. People with SCI who have more extensive physical impairments are generally more reliant on others to meet basic needs because of a loss of functional capacity as measured by limited capacity for ADL (Sisto et al., 2009). Psychological empowerment tends to decrease when an individual becomes dependent on others as a result of losing physical competence. Therefore, people with severe impairment or poor ADL capacity may exhibit lower psychological empowerment (Chen et al., 2013; Hara et al., 2014).

Social support refers to the patient's perception of the level of social support (tangible, emotion, and information) received from his or her social network (Schaefer et al., 1981). When patients perceive the level of social support as sufficient, they can better manage stressful situations, are less likely to experience depression, and better able to overcome problems (Cakir & Guneri, 2011). Social support involves offering advice, listening, encouraging, and sharing self-care knowledge and resources. Such support can prevent depression, assist patients in understanding self-care, and build selfconfidence (Sibitz et al., 2011). Furthermore, it might help eliminate feelings of isolation while enhancing confidence in self-care. All of these can contribute to greater psychological empowerment (Isaksson et al., 2015).

Self-esteem refers to a sense of self-respect and selfconfidence that emerges from individuals' relationships with their family members, society, and culture. A loss of self-esteem is linked with depression and anxiety (Rosenberg, 1965). Living with physical impairments can threaten patients' roles in life, as they are required to depend on others for the rest of their lives, which can further lead to impaired self-esteem. A loss of selfesteem can impair self-development, which can lead to feelings of fear, anxiety, depression, and low empowerment (Ahn & Choi, 2015). In addition, people who are dependent on others in the long term might experience mounting concerns, feelings of guilt, low self-esteem, and less empowerment. If people can maintain high self-esteem, they might be able to maintain empowerment (Wang et al., 2013).

The purpose of this study was to develop and evaluate a causal model of the factors that influence psychological empowerment among people with SCI. The factors examined were age, education, physical impairment duration, functional ability, social support, and selfesteem.

Theoretical Framework

The framework of this study was based on the concept of psychological empowerment (Zimmerman, 1995) and evidence from previous studies. Psychological empowerment refers to the strategies employed to control one's personal life, and judgment to understand social basics and individual contexts. It is a process by which people, organizations, and communities gain mastery over issues of concern to them (Rappaport, 1987). Psychological empowerment operates through intrapersonal, interactional, and behavioral components (Zimmerman, 1995; Zimmerman & Warschausky, 1998). According to Zimmerman (1995), together, these three components describe a person's ability to influence their environment or situation (intrapersonal components); understand how the situation works and their options, that is, "environmental mastery" (interactional components); and engage in behavior to control or influence the environment (behavioral components).

In this study, the evaluation of psychological empowerment focuses on the intrapersonal components. Intrapersonal components refer to how people think about themselves and include domain-specific perceived control and self-efficacy, motivation to control, and perceived competence (Zimmerman, 1995). The intrapersonal component frames empowerment as a personality trait that encompasses perceived control, self-efficacy, sense of community, and perceived competence (Bolton & Brookings, 1998). The present study examined the factors influencing psychological empowerment among people with SCI, outlining the relationships between the select variables and psychological empowerment in a causal model. The hypothesized model involves five exogenous variables (age, education, social support, duration of physical impairment, and functional ability) and two endogenous variables (self-esteem—a mediator, and psychological empowerment—the outcome variable).

Methods

Design and Sample

A cross-sectional descriptive correlational design was used to test the hypothesized model (see Figure 1). The target population was people with SCI. Purposive sampling was used with the following inclusion criteria: age between 18 and 60 years, physician diagnosis of SCI, at least 1 month since hospital discharge, an ADL score of less than 20 points (Barthel Index was applied with a total possible score of 20 points), ability to understand and communicate in the Thai language, and willingness to participate. To analyze the relationships, the researchers used a multivariate method (path analysis) by using the Linear Structural Relationship (LISREL) Program. The researchers sought to recruit at least 200 participants in line with Kline's (2005) recommendation. In total, 260 people with SCI were recruited using information obtained from the outpatient department of one university hospital in Thailand.

Measurements

Five instruments were used to collect the data: the researcher-developed Demographic Data Form (DDF), Personal Opinions Questionnaire (POQ), Barthel Index (BI), Rosenberg Self-Esteem Scale (RSES), and Social Support Questionnaire (SSQ). The DDF collected information on age, gender, marital status, education, occupation, duration of physical impairment, diagnosis, and presence of complications.

The POQ was developed by Bolton and Brooking (1998) based on the Zimmerman et al. (1992) to evaluate the psychological empowerment of people with SCI. The instrument consists of 64 items divided into the following four components: personal competence, group orientation, self-determination, and positive identity as a person with a disability; it includes 30 positive items and 34 negative items. Each item has two answer options: true or not true. A score of 1 is given for true answers to positive items or not true answers to negative items. The total score ranges from 0 to 64, with higher scores indicating greater perceived empowerment.

Bolton and Brookings (1998) developed the POQ constructive validity with a sample of 156 persons with disabilities for factor analysis with oblique rotation. The internal consistency reliability was tested. The resulting Cronbach's α coefficients were personal competence at 0.89, whereas group orientation was 0.86, self-determination was 0.80, and positive identity as a person with a disability was 0.86. In 2000, Bolton and Brookings examined the POQ constructive validity with a sample of 473 persons with disabilities. This test was for analyzing confirmatory factors using 64 questions divided into the same four group components. The Cronbach's α coefficient of personal competence was 0.89, group orientation was 0.77, self-determination was 0.73, and positive identity as a person with a disability was 0.75. The total assessment of the POQ constructive validity was 0.93. Based on the literature review, it was concluded that the POO had not previously been used in a research study in Thailand and not yet been translated into Thai. As such, the researcher translated the questionnaire for this study into Thai: the translation was then back translated to ensure accuracy. The Cronbach's a coefficient of the POQ in this study was 0.89.

The BI was developed by Mahoney et al. (1958), whereas Jitapunkul et al. (1994) translated and adapted the instrument to fit the Thai context. It is used to



FIGURE 1. Hypothesized model for predicting psychological empowerment of people with spinal cord injury.

evaluate the ability to perform various ADL at home within the past 24–48 hours. The BI measures 10 activities: feeding, personal toileting, bowel control, bladder control, dressing, chair–bed transfer, toilet use, ambulation, stair climbing, and bathing. Each activity is scored differently based on its degree of importance in daily life. The total scores range from 0 to 20, with higher scores indicating greater ability to perform the various ADL.

Jitapunkul et al. (1994) tested the construct validity of the Modified BI with 703 elderly patients who lived in Klongtoey Slum by exploratory factor analysis with orthogonal (varimax) rotation. The number of factors were considered on the basis of an eigenvalue of more than 1.0 and factor loading of more than 0.50. According to the findings, all 10 questions were divided into four factors as the basic self-care ADLs, extended (or instrumental) ADLs, mobility ADLs, and bladder/bowel control. Khampolsiri (2006) tested the reliability of the Modified BI with 10 stroke patients and found a Cronbach's α coefficient of 0.86. The Cronbach's α coefficient of the BI in this study was 0.88.

The RSES was developed by Rosenberg (1965) and translated into Thai by Srimoragot (1993). The instrument contains 10 items (five positive and five negative) each rated on a 4-point Likert scale. Total scores range from 10 to 40, with higher scores indicating greater selfesteem. The content validity of the Thai version of the RSES was evaluated by five experts in psychology. The results of this testing showed that the RSES (Thai version) can be used for measuring Thai patients' self-esteem. Srimoragot (1993) used the RSES (Thai version) to study 60 patients with cervical cancer undergoing radiotherapy. The reliability of Cronbach's α was 0.87-0.90. Kitrungrote (2000) tested the reliability of the RSES (Thai version) with 86 patients with cervical cancer receiving radiation therapy and found a Cronbach's α coefficient of 0.86. The Cronbach's α coefficient of the RSES in this study was 0.83.

The SSQ was developed by Hanucharurnkul (1988), who based the instrument on translated and adapted items from the SSQ developed by Schaefer et al. (1981) and the Norbeck Social Support Questionnaire developed by Norbeck et al. (1981). The SSO modified by Hanucharurnkul (1988) assesses support from the following five sources: (1) family members living in the same household; (2) healthcare providers; (3) friends and neighbors; (4) community members; and (5) extended family, for example, adult siblings and other relatives. The construct validity of the SSQ modified by the Hanucharurnkul (1988) version was tested by factor analysis in 300 postradiotherapy patients with cervical cancer. The results revealed that all seven questions were extracted in one factor, and 70.87% of the variance was explained. Therefore, SSQ modified by Hanucharurnkul (1988) was examined as one factor from multiple sources (Santawaja, 2002). Internal consistency was established from 112 patients with cancer receiving radiation therapy. The coefficient α for the total SSQ was 0.97 (Hanucharurnkul, 1988).

This study used the version of the SSQ created by Khuwatsamrit (2006), a revision of the SSQ modified by Hanucharurnkul (1988), to assess the amount of sup-

port from the following three sources: (1) family members; (2) healthcare providers; and (3) friends and neighbors. Each item is rated on a scale ranging from 0 (no support) to 4 (most support). This instrument is used to evaluate social support and consists of one item on informational support, four items on emotional support, and two items on material support and services. The same seven items are used to assess each of the three sources. The scores for each source range from 0 to 28, with the total score for all sources ranging from 0 to 84. Higher scores indicate higher social support. In the study by Khuwatsamrit (2006), the reliability of the SSQ was tested with 58 patients with coronary artery disease. The coefficient α of the total SSO was 0.89. For the subscales, the coefficient α was 0.91 for family support, 0.91 for healthcare provider support, and 0.91 for peer support. The Cronbach's α coefficient of the SSQ in this study was 0.96.

DATA COLLECTION

Participants took approximately 45 minutes to complete the questionnaires at home. The sample was selected from a hospital patient database and contacted via telephone. After participants had agreed to join this study, they were given a description of the study and its research objectives with assurance that the rights of participants would be protected. Upon obtaining informed consent, the participants were interviewed by phone to obtain data on personal characteristics and ADL. Questionnaires were sent to all participants via mail along with an envelope to be used to return the completed questionnaires. Participants who did not return their questionnaires received phone reminders from the researcher. A response rate of 100% was obtained in this study.

DATA ANALYSIS

Data analysis was performed by using SPSS version 21. Significance was set at .05 for all analyses. Participants' characteristics and the main variables were analyzed by using descriptive statistics such as frequency, percentage, mean, and standard deviation. Underlying assumptions of the path analysis, including normality, multicollinearity, homoscedasticity, and linearity, were checked. The data did not violate any of these assumptions. LISREL was used to test the hypothesized model in this study by using the maximum likelihood estimation method.

ETHICAL CONSIDERATIONS

Institutional review board approval was obtained from the Ethics Committee of the Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Thailand, prior to data collection.

Results

Participant characteristics were as follows. A total of 260 people with SCI participated, most of whom were males (n = 203, 78.1%). The largest demographic groups were as follows: age: 31–40 years (n = 88, 33.8%); completion of a bachelor's degree (n = 111, 42.7%); Buddhist religion (n = 248, 95.4%); single marital status (n = 176,

TABLE 1. CORRELATIONS AMONG THE VARIABLES ($N = 260$)							
Variable	Age (Years)	Education	Impairment Duration	Functional Ability	Social Support	Self- Esteem	Empowerment
Age (years)	1.00						
Education	0.23**	1.00					
Impairment duration	0.22**	-0.05	1.00				
Functional ability	0.04	-0.04	0.18**	1.00			
Social support	-0.02	-0.13*	0.02	0.03	1.00		
Self-esteem	-0.01	-0.11	0.26**	0.35**	0.29**	1.00	
Empowerment	-0.07	-0.17**	0.26**	0.30**	0.29**	0.79**	1.00
$^{*} \rho < .05$, $^{**} \rho < .01$.							

67.7%), and unemployed (n = 109, 41.9%). The major cause of SCI was motor vehicle accident (68.5%). The duration of physical impairment ranged from 2 months to 41 years (M = 10.37 years, SD = 99.30). The specific diagnoses of SCI were quadriplegia with an incomplete cord lesion (n = 21, 8.1%); quadriplegia with a complete cord lesion (n = 75, 28.8%); paraplegia with an incomplete cord lesion (n = 8, 3.1%); and paraplegia with a complete cord lesion (n = 156, 60.0%).

The preliminary Pearson's correlation analysis results revealed significant positive correlations between psychological empowerment and self-esteem (r = .79, p < .01), physical impairment duration (r = .26, p < .01) .01), social support (r = .29, p < .01), and functional ability (r = .30, p < .01). There was a negative correlation between psychological empowerment and education (r = -.17, p < .01). Significant positive correlations were found between self-esteem and physical impairment duration (r = .26, p < .01), social support (r = .29, p < .01), and functional ability (r = .35, p < .01). Among all variables, self-esteem had the strongest correlation with psychological empowerment, and functional ability had the strongest correlation with self-esteem (see Table 1). Range, mean, and standard deviation are shown in Table 2.

The model testing results were as follows. All fit indices indicated that the hypothesized model did not fit the data. Thus, the model was modified by utilizing modification indices and theoretical reasoning until it fit the data well. One nonsignificant path coefficient (from functional ability to psychological empowerment) was deleted. In the final modified model (see Figure 2), 64% of the variance in the psychological empowerment of people with SCI was accounted for by physical impairment duration, social support, functional ability, and

self-esteem. Age and education did not have a significant effect on self-esteem or empowerment. Self-esteem ($\beta = .75, p < .001$) had a significant positive direct effect on empowerment. Physical impairment duration ($\beta = .16, p < .01$), social support ($\beta = .20, p < .01$), and functional ability ($\beta = .23, p < .01$) had significant positive indirect effects on empowerment via self-esteem. In addition, physical impairment duration ($\beta = .21, p < .01$), social support ($\beta = .27, p < .01$), and functional ability ($\beta = .31, p < .01$) had significant positive direct effects on self-esteem. The results of the direct, indirect, and total effect of empowerment among people with SCI are presented in Table 3.

Discussion

The study findings are contrary to those of some previous studies. Past studies have shown that age (Chiauzzi et al., 2016), education (Reshadat et al., 2014), and illness duration (Tol et al., 2013) had significant direct effects on psychological empowerment. In contrast, in this study, as in some previous studies, age (Isaksson et al., 2015), education (Bali Swain & Wallentin, 2012), and physical impairment duration were not significant predictors of psychological empowerment. Moreover, the present study also found that psychological empowerment did not differ by age, education, or physical impairment duration. Although there were differences in the ages, education levels, and physical impairment duration among these patients, the responsibility for personal healthcare of all patients had to follow the same standards and criteria. Furthermore, as 41.9% were unemployed, many of the participants had time to focus on themselves. Many accessed support services, information, and resources, including nursing guidelines

TABLE 2. RESULTS	OF ANALYSIS	OF STUDY VA	ARIABLES (N =	260)
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TABLE 2. RESULTS OF ANALISIS OF STOLE VARIABLES (N = 200)						
Variables	Possible Range	Actual Range	Mean	SD		
Age (years)	18–60	18–60	40.20	10.59		
Education	≥0	0–16	13.30	2.83		
Physical impairment duration (months)	≥1	2–492	124.44	99.30		
Functional ability	0–20	0–20	12.13	6.45		
Social support	0–84	0–84	47.27	17.80		
Self-esteem	10–40	10–40	26.92	7.10		
Empowerment	0–64	7–56	35.74	10.54		

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FIGURE 2. Final modified model of predicting psychological empowerment of people with spinal cord injury. **p < .01. ***p < .001. $\chi^2 = 0.32$, df = 1, p = .57.

that supported the development self-care skills. Therefore, although participants differed in age, education, and physical impairment duration, levels of psychological empowerment were roughly similar.

In contrast to the present study, previous studies of individuals with chronic diseases revealed that patients with chronic diabetes mellitus who had high social support scores also had high empowerment scores (Isaksson et al., 2015). However, the present study failed to find a direct positive effect between social support and empowerment. This was similar to Spreitzer's (1995) study of middle manager persons. It is possible that the SSQ version of Khuwatsamrit (2006) assessed support from family members, healthcare providers, friends, and neighbors not covered by other forms of social support. It is possible that people with SCI in our study accessed social media and downloadable videos from the internet. This readily accessible resource may have minimized the importance of social support to improve knowledge and skills in caring. In addition, people with

TABLE 3. DIRECT, INDIRECT, AND TOTAL EFFECTS IN THE FINAL MODEL (N = 260)

SCI have disability meeting groups where they could meet and exchange knowledge on self-care for persons with disability. Patients might have also exchanged phone numbers and consulted outside of meetings, providing further opportunity to develop knowledge and skills. Although patients found information from a range of resources and received social support differently, levels of the empowerment were no different.

The present study found that self-esteem had a positive direct effect on psychological empowerment, which was similar to the findings of the previous studies (Ahn & Choi, 2015; Wang et al., 2013). Patients with high self-esteem were more empowered perhaps because their positive feelings and self-respect made them confident that they were able to look after themselves as healthy persons without complications. In addition, patients with high-esteem felt proud of themselves. They were more likely to express their opinions and ensure that they got what they needed or wanted. As a result, they could control the impairment of SCI

		Outcome Variables						
		Self-Esteem			Psychological Empowerment			
Predictor Variables	DE	IE	TE	DE	IE	TE		
Age (years)	-0.06	-	-0.06	-0.06	-0.04	-0.10		
Education	-0.04	-	-0.04	-0.06	-0.03	-0.09		
Physical impairment duration	0.21**	_	0.21**	0.08	0.16**	0.23**		
Social support	0.27**	_	0.27**	0.06	0.20**	0.26**		
Functional ability	0.31**	-	0.31**	_	0.23**	0.23**		
Self-esteem	_	_	-	0.75***	_	0.75***		
		$R^2 = .25$			$R^2 = .64$			

Note. DE = Direct effect; IE = Indirect effect; TE = Total effect. **p < .01. ***p < .001.

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and solve the problems they faced. In addition, patients with high-esteem tended to set goals for self-care. Hence, the patients with high self-esteem had high selfempowerment.

The results revealed that physical impairment duration, functional ability, and social support had indirect effects on psychological empowerment through self-esteem. Patients who had considerable experience with illness had higher self-esteem, which in turn improved psychological empowerment. This was found in previous studies in which persons with long illness duration were more likely to have stronger self-care skills and more able to perform ADL. Having the necessary selfcare knowledge and skills might have enabled patients to look after themselves more than patients with less self-care experience. As a result, participants with longterm impairment in the present study had better selfesteem and psychological empowerment. The results also illustrated that patients who were better able to perform ADL had high self-esteem, which increased psychological empowerment. This shows that the ability to perform ADL is essential for all patients to live an independent life, which in turn improves psychological empowerment. Furthermore, the present study found that social support influenced patients' self-esteem, and thereby their psychological empowerment. This is likely because social support is naturally accompanied by care, encouragement, praise, support from social networks, and love, which helps patients develop positive feelings about themselves. This, in turn, leads to greater self-esteem and psychological empowerment. Patients with high social support, who are loved and cared for and tend to receive help and support from others, will likely have higher self-esteem and more positive image of themselves. Such positive self-regard improves selfesteem and, as a result, promotes psychological empowerment.

LIMITATIONS

As the present study used convenience sampling, the results might have been influenced by sampling bias. Furthermore, this study was specifically conducted among patients with SCI at a university hospital. Thus, the generalizability of the findings to the overall population of people with SCI is limited. Although reliability was tested, the construct and content validity of the instruments used in this study were not tested for validity in a Thai context. Finally, because a cross-sectional design was used, the findings cannot be used for designing nursing interventions to meet the needs of patients with SCI at different points in time.

Conclusion

The findings provide information regarding the factors influencing empowerment among Thai people with SCI. Based on the findings, the researchers recommend focus on enhancing self-esteem, social support, and functional ability to maintain or build a high level of psychological empowerment. As this research took place in a Thai social context, the findings might be helpful in supporting the development of a nursing intervention program for Thai people with SCI. Future studies with qualitative or mixed-methods designs are suggested to obtain more comprehensive information on the trajectory of empowerment among people with SCI from admission until they return to their respective communities.

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REFERENCES

- Ahn, Y.-H., & Choi, J. (2015). Factors affecting Korean nursing student empowerment in clinical practice. *Nurse Education Today*, 35(12), 1301–1306. https://doi. org/10.1016/j.nedt.2015.08.007
- Bali Swain, R., & Wallentin, F. Y. (2012). Factors empowering women in Indian self-help group programs. *International Review of Applied Economics*, 26(4), 425– 444.
- Bolton, B., & Brookings, J. (1998). Development of a measure of intrapersonal empowerment. *Rehabilitation Psychology*, 43(2), 131–142. https://doi.org/10.1037/ 0090-5550.43.2.131
- Cakir, S. G., & Guneri, O. Y. (2011). Exploring the factors contributing to empowerment of Turkish migrant women in the UK. *International Journal of Psychology*, *46*(3), 223–233. https://doi.org/10.1080/00207594.2010 .532800
- Chen, M.-F., Tsai, C.-T., Hsu, S.-M., Tu, S.-Y., Kao, P.-L., & Chen, S.-L. (2013). Patient perceptions of empowerment processes, health outcomes and related factors in patients living with diabetes in Taiwan: A cross-sectional survey. *Journal of Community Health Nursing*, *30*(4), 201–215. https://doi.org/10.1080/07370016.2013 .838488
- Chiauzzi, E., DasMahapatra, P., Cochin, E., Bunce, M., Khoury, R., & Dave, P. (2016). Factors in patient empowerment: A survey of an online patient research network. *Patient*, 9(6), 511–523. https://doi.org/10.1007/ s40271-016-0171-2
- Craig, A., Tran, Y., & Middleton, J. (2009). Psychological morbidity and spinal cord injury: A systematic review. *Spinal Cord*, 47(2), 108–114. https://doi.org/10.1038/ sc.2008.115
- Fotoukian, Z., Shahboulaghi, F. M., Khoshknab, M. F., & Mohammadi, E. (2014). Concept analysis of empowerment in old people with chronic diseases using a hybrid model. *Asian Nursing Research*, 8(2), 118–127. https://doi.org/10.1016/j.anr.2014.04.002
- Hanucharurnkul, S. (1988). Social support, self-care, and quality of life in cancer patients receiving radiotherapy in Thailand. Unpublished doctoral dissertation, Wayne State University.
- Hara, Y., Iwashita, S., Okada, A., Tajiri, Y., Nakayama, H., Kato, T., Nakao, M., Tsuboi, K., Breugelmans, R., & Ishihara, Y. (2014). Development of a novel, short, selfcompleted questionnaire on empowerment for patients with type 2 diabetes mellitus and an analysis of factors affecting patient empowerment.

BioPsychoSocial Medicine, *8*, 19. https://doi.org/ 10.1186/1751-0759-8-19

- Isaksson, U., Hajdarevic, S., Abramsson, M., Stenvall, J., & Hörnsten, A. (2015). Diabetes empowerment and needs for self-management support among people with type 2 diabetes in a rural inland community in northern Sweden. *Scandinavian Journal of Caring Sciences*, 29(3), 521–527. https://doi.org/10.1111/scs.12185
- Jitapunkul, S., Kamolratanakul, P., & Ebrahim, S. (1994). The meaning of activities of daily living in a Thai elderly population: Development of a new index. *Age and Ageing*, 23(2), 97–101. https://doi.org/10.1093/ageing/23.2.97
- Khampolsiri, T. (2006). A home-based nursing intervention program for enhancing quality of life of stroke survivors. Unpublished doctoral dissertation, Chiang Mai University.
- Khazaeipour, Z., Norouzi-Javidan, A., Kaveh, M., Mehrabani, F. K., Kazazi, E., & Emami-Razavi, S.-H. (2014). Psychosocial outcomes following spinal cord injury in Iran. *The Journal of Spinal Cord Medicine*, 37(3), 338–345. https://doi.org/10.1179/20457723 13Y.0000000174
- Khuwatsamrit, K. (2006). Adherence to self-care requirements model: An empirical test among patients with coronary artery disease. Unpublished doctoral dissertation, Mahidol University.
- Kitrungrote, L. (2000). Severity of side effects, self-esteem, social support and role adaptation of cervical cancer patients receiving radiation therapy. Unpublished master thesis, Mahidol University.
- Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). Gulford Press.
- Mahoney, F. I., Wood, O. H., & Barthel, D. W. (1958). Rehabilitation of chronically ill patients: The influence of complications on the final goal. Southern Medical Journal, 51(5), 605–609. https://doi. org/10.1097/00007611-195805000-00011
- Norbeck, J. S., Lindsey, A. M., & Carrieri, V. L. (1981). The development of an instrument to measure social support. *Nursing Research*, 30(5), 264–269.
- Rappaport, J. (1987). Terms of empowerment/exemplars of prevention: Toward a theory for community psychology. *American Journal of Community Psychology*, 15(2), 121–148.
- Reshadat, S., Rajabi, G. N., Ghasemi, S. R., & Jamshidinazar, F. (2014). Assessment of rural women empowerment level and its relation with demographic and structural factors in Kermanshah, Iran, 2012. *Life Science Journal*, 11(4), 86–93.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton University.
- Santawaja, C. (2002). A causal model of psychosocial adjustment in post radiotherapy cervical cancer women. Unpublished doctoral dissertation, Mahidol University.

- Schaefer, C., Coyne, J. C., & Lazarus, R. S. (1981). The health-related functions of social support. *Journal of Behavioral Medicine*, 4(4), 381–406. https://doi. org/10.1007/BF00846149
- Shearer, N. B. (2004). Relationships of contextual and relational factors to health empowerment in women. *Research and Theory for Nursing Practice*, 18(4), 357–370. https://doi.org/10.1891/rtnp.18.4.357.64094
- Sibitz, I., Amering, M., Unger, A., Seyringer, M. E., Bachmann, A., Schrank, B, Benesch, ,T, Schulze, ,B, & Woppmann, A. (2011). The impact of the social network, stigma and empowerment on the quality of life in patients with schizophrenia. *European Psychiatry*, 26(1), 28–33. https://doi.org/10.1016/j.eurpsy.2010.08.010
- Sisto, S. A., Druin, E., & Macht-Sliwinski, M. (2009). Spinal cord injuries: Management and rehabilitation. Mosby Elsevier.
- Spreitzer, G. M. (1995). An empirical test of a comprehensive model of intrapersonal empowerment in the workplace. *American Journal of Community Psychology*, 23(5), 601–629. https://doi.org/10.1007/BF02506984
- Srimoragot, P. (1993). Effect of supportive counseling on perceived illness, self-esteem, and morale in cervical cancer patients undergoing radiotherapy. Unpublished doctoral dissertation, Mahidol University.
- Tol, A., Baghbanian, A., Mohebbi, B., Shojaeizadeh, D., Azam, K., Shahmirzadis, S. E., & Asfia, A. (2013). Empowerment assessment and influential factors among patients with type 2 diabetes. *Journal of Diabetes and Metabolic Disorders*, *12*(1), 6. https://doi. org/10.1186/2251-6581-12-6
- Tol, A., Shojaeezadeh, D., Sharifirad, G., Alhani, F., & Tehrani, M. M. (2012). Determination of empowerment score in type 2 diabetes patients and its related factors. *Journal of Pakistan Medical Association*, 62(1), 16–20.
- Wang, J.-L., Zhang, D.-J., & Jackson, L. A. (2013). Influence of self-esteem, locus of control, and organizational climate on psychological empowerment in a sample of Chinese teachers. *Journal of Applied Social Psychology*, 43(7), 1428–1435.
- Zimmerman, M. A. (1995). Psychological empowerment: Issues and illustrations. *American Journal of Community Psychology*, 23(5), 581–599.
- Zimmerman, M. A., Israel, B. A., Schulz, A., & Checkoway, B. (1992). Further explorations in empowerment theory: An empirical analysis of psychological empowerment. *American Journal of Community Psychology*, 20(6), 707–727.
- Zimmerman, M. A., & Warschausky, S. (1998). Empowerment theory for rehabilitation research: Conceptual and methodological issues. *Rehabilitation Psychology*, 43(1), 3–16. https://doi.org/10.1037/0090-5550.43.1.3