

FACTORS AFFECTING SELF-CARE IN PATIENTS WITH SPINAL CORD INJURIES: -A META-SYNTHESIS MODEL-

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ABSTRACT

Self-care is of particular importance in patients with spinal cord injuries (SCIs). In addition, it is necessary to identify and consider the factors affecting self-care when developing an efficient and effective self-care plan for these patients. The present was conducted to investigate the factors affecting self-care in patients with SCIs via meta-synthesis method. Individual factors and factors associated with SCI, caregivers, and the healthcare system affect self-care of patients with SCI. In addition to providing respectful care for patients, caregivers and medical staff should provide self-care program and training tailored to each patient's conditions and individual programs should be considered.

Key Words: Health Promotion, Nursing Care, Self-care, Spinal Cord Injuries (SCIs).

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BACKGROUND

A spinal cord injury (SCIs) is a critical event with severe complications [1] and its incidence rate is rising with increases in annual rates of road accident [2]. The prevalence of spinal cord injury varies in different countries [3]. In the United States, there are over 250,000 patients with SCI and this number increases by approximately 12,000 new cases every year [1]. In 2011, the number of patients with SCI in Brazil was 130,000 [2]. Moreover, the number of patients with SCI is rising due to increased life expectancy [4]. This creates more complications and challenges such as cardiovascular problems and osteoporosis for these patients over time [4]. SCI is associated with high mortality and morbidity and multiple complications following impairments in sensory motor systems [3]. In addition, poor repair capabilities of neurons results in lasting complications in patients with SCI [5]. The impairments in functions and activities following SCI depend on trauma level and the activities of the

location of the injury [6]. Fatigue and pain [7], anxiety and dependence [8], depression [9], bed sore [10], decreased function of the muscular and cardiovascular systems [11, 12], incontinence, urinary tract infections, respiratory diseases [13] and osteoporosis [14] are the most common complications. As mentioned earlier, these patients face many physical, emotional, and social challenges at the beginning of the disease [1]. Motor and cognitive problems are prominent at discharge, but emotional problems, mental health impairments and self-care problems become more important after discharge. Therefore, self-care is of particular importance in patients with SCIs [15]. Improvement in self-care knowledge and skills plays a role in upgrading quality of life for these patients [6] and, with improved daily and social activities, can bring them back to society provided that it continues after discharge [1]. However, due to short stays in by patients with spinal cord injury, they may not receive

the necessary self-care training and knowledge during hospitalization [1]. Therefore, identification of factors affecting self-care in patients with spinal cord injury seems to be essential.

METHODS

This systematic review was carried out through meta-synthesis. The objective of this study was to integrate all the little pieces of information concerning factors affecting self-care abilities of patients with SCI. Therefore, the available literatures about factors influencing self-care of patients with SCI were reviewed using the comparative approach and carrying out systematic review via meta-analysis [16, 17]. To perform the meta-analysis, an adapted strategy based on the University of York's Center for Reviews and Dissemination's guidelines was used [18].

According to the objective of the study, the initial

general question was to search for "factors affecting self-care in patients with SCI." The keywords self-care, SCI, nursing, and health were used to search for texts in Pro Quest, Science Direct, Ovid, and Pub Med databases. Inclusion criteria were articles in English and Persian, relevant to self-care of patients with SCIs and published between 1990 and 2019.

Four hundred and fifty seven articles were found. The number was reduced to 318 after excluding duplicate articles. The abstracts of the selected articles were reviewed for compliance with the inclusion and exclusion criteria and then analyzed using the Strengthening the Reporting of Observational studies in Epidemiology "STROBE" and consolidated standards of reporting trials "CONSORT" Review Guidelines. Finally, 27 articles were selected for the research. Figure 1 illustrates the article selection process.

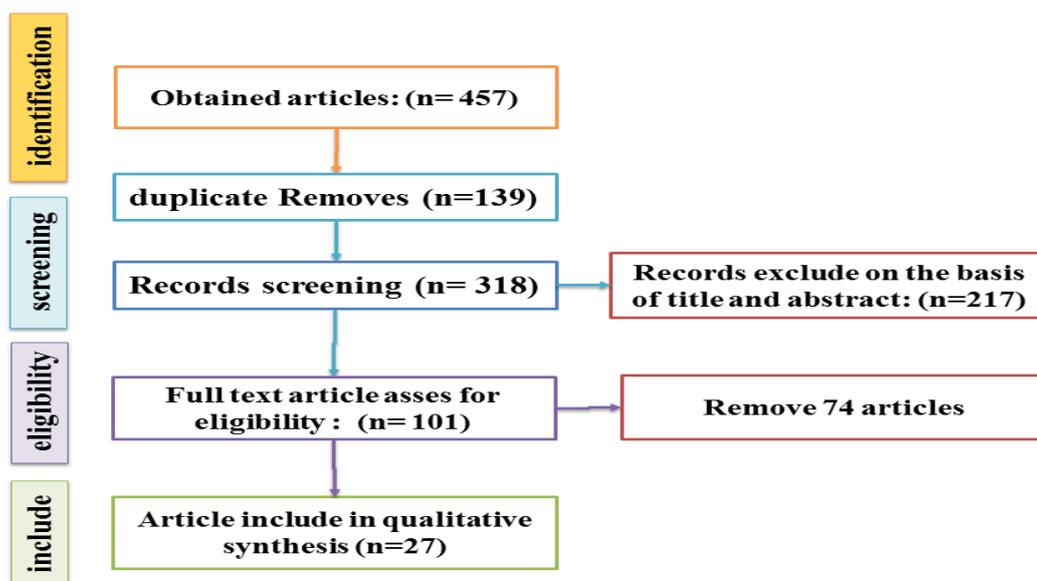


Figure 1: Article selection process diagram

Two researchers separately and simultaneously reviewed the articles using the mentioned tools [19, 20]. The articles considered suitable by both researchers were included in the study and analyzed using thematic analysis. The audit trail method was

used to improve the rigor of the data, and the data were analyzed simultaneously by the two mentioned researchers [19-21]. **Table I** presented studies that included for data analysis.

Table I: Studies related to the factors affecting self-care in patients with SCI

no	References	Authors	Categories
1	[22]	(Elliot, Kurylo <i>et al.</i>)	Cultural beliefs
2	[23]	(Bombardier <i>et al.</i>)	demographic factors
3	[24]	(Coura <i>et al.</i> , 2013)	demographic factors, Cultural beliefs Trauma factors
4	[25]	(Gao <i>et al.</i> , 2015)	demographic factors
5	[26]	(Ginis <i>et al.</i> , 2012)	Trauma factors, Care givers factors
6	[27]	(J. J. van Middendorp <i>et al.</i> , 2016)	demographic factors
7	[28]	(Joost J van Middendorp <i>et al.</i> , 2011)	Governmental and non governmental social welfare
8	[29]	(Krause <i>et al.</i> , 2004)	Trauma factors
9	[30]	(Le Fort <i>et al.</i> , 2017)	Governmental and non governmental social welfare
10	[13]	(Lin <i>et al.</i> , 2009)	demographic factors, Trauma factors, Governmental and non-governmental social welfare
11	[14]	(Minematsu <i>et al.</i> , 2016)	Care givers factors
12	[31]	(Myburg <i>et al.</i> , 2017)	Governmental and non governmental social welfare, demographic factors, Family Support
13	[32]	(Ning <i>et al.</i> , 2016)	demographic factors, Care givers factors
14	[33]	(Nooijen <i>et al.</i> , 2016)	Care givers factors
15	[34]	(Phillips <i>et al.</i> , 2016)	demographic factors, Family Support, Trauma, factors, Governmental and non governmental social welfare
16	[35]	(Piatt <i>et al.</i> , 2016)	Governmental and non governmental social welfare
17	[36]	(Pouplin <i>et al.</i> , 2016)	Care givers factors
18	[37]	(Rasul & Biering-Sorensen, 2016)	demographic factors, Governmental and non governmental social welfare
19	[38]	(Rice <i>et al.</i> , 2013)	Care givers factors, Governmental and non governmental social welfare
20	[6]	(Post <i>et al.</i> , 2016)	Trauma factors
21	[39]	(Rodriguez-Meza <i>et al.</i> , 2016)	demographic factors
22	[39]	(Rodriguez-Meza <i>et al.</i> , 2016)	Trauma factors
23	[40]	(Samuelkamaleshkumar <i>et al.</i> , 2010)	demographic factors, Governmental and non governmental social welfare
24	[41]	(Sinha <i>et al.</i> , 2015)	Governmental and non governmental social welfare
25	[42]	(Tulsky <i>et al.</i> , 2012)	Demographic factors, Family Support, Trauma factors
26	[2]	(Vall <i>et al.</i> , 2011)	Demographic factors, Governmental and non governmental social welfare
27	[28]	Middendorp <i>et al.</i> , 2011)	Trauma factors

RESULTS

According to the results, 4 groups of factors were identified that influenced self-care of patients with SCT: individual factors [3] and factors associated with SCI [4], caregivers [5] and the healthcare system [6]. The individual factors included the patients' age, gender, physical ability, their previous experience or that of their relatives, cultural beliefs, economic status, social welfare and support systems. The factors associated with SCI included trauma level, involvement level, trauma severity, accompanying

traumas, and underlying diseases affecting the treatment course. The factors associated with caregivers were the behavior of nurses and physicians towards the patients and provision of the necessary training according to the patients' needs by the treatment team. The factors associated with the healthcare system included support systems for the patients including associations and organizations supporting patients of special diseases. Table II presents categories and sub category of factors affecting self-care in patients with SCI.

Table II- Categories and sub category of factors affecting self-care in patients with SCI

Sub categories	Categories
Patients' age, gender, physical ability, and previous experience or their relatives' previous experience	Individual
Cultural beliefs	
Economic status	
Family supporting	SCI
Trauma level, trauma severity, Other accompanying trauma	
Other underlying diseases	
Skills and Behavior of the nurses and physician towards the patient Provision of the necessary training according to the patients' needs	Caregivers
Community-based support systems Governmental and non governmental social welfare	Healthcare System

DISCUSSION

Individual factors were the main part of the model due to their important role in acceptance of the disease and disease-related disabilities. Factors associated with SCI, caregivers, and the healthcare system can affect individual factors and each other. Factors associated with caregiving and with the healthcare system are among those that can be used to reduce the complications of the disease. For example, community-based rehabilitation and support programs for these patients can help improve their quality of life and bring them back to society. **Figure 2** illustrates the factors affecting self-care of patients with SCI.

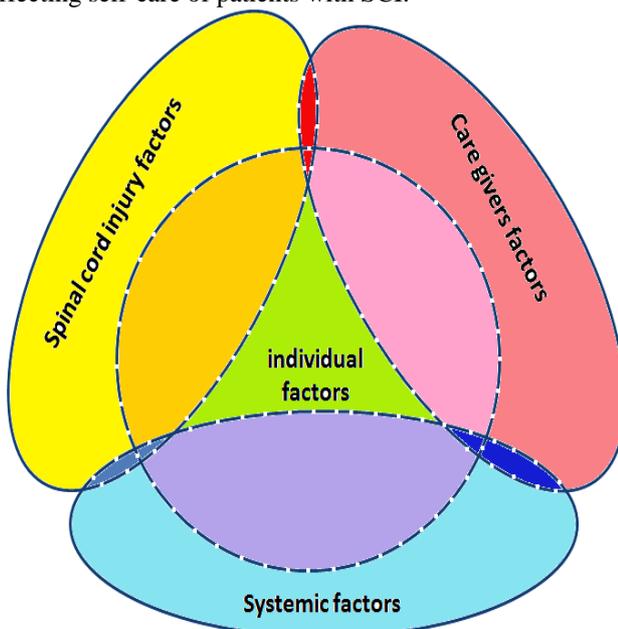


Figure2: Factors affecting self-care of patients with SCI

Coura *et al.* stated that demographic factors including gender, age, religion, education level, income, marital status, type of accident or infectious disease and paraplegia or hemiplegia are related to the self-care ability of patients with SCI and should be considered in care giving [24]. In the present study, the type of accident or infection, paraplegia or hemiplegia were not considered among demographic or individual factors because, as Joost J van Middendorp *et al.* stated, traumatic SCI could cause physical and mental impairments in patients [28]. The researchers in the present study also believed that these factors were caused by SCI and hence placed them in a separate category.

Elliot, Kurylo *et al.* suggested that alcohol could affect the development of bedsores in patients with SCI [22]. Lin *et al.* emphasized that individual factors such as age at trauma, gender, education level, occupation and ability to work, level and severity of the disease, psychological factors such as depression, and social factors such as community-based support systems were related to return to society and occupation [13]. Mehta *et al.* reported that patients with SCI experienced pain, anxiety, and dependence that affected their ability to adapt and had to be addressed during rehabilitation [8]. Bombardier *et al.* noticed that age lower than high school was associated with depression, and behavioral therapy and encouragement were able to affect rehabilitation [23]. Their results showed that individual factors and factors associated with the disease were able to influence each other and considered this in the model of the effects of the factors on each other. In addition, the clinical status is important to take in count for the self-care system because it defines what care

givers and healthcare system should do for the improvement of the patient. This includes physical and mental health status. SCI are defined by a physical impairment that will affect the emotional and mental behavior of the patient.

Myburg et al. stated that environmental supportive systems influenced satisfaction, safety, and supporting of patients with SCI, but the propensity to use them varied in patients because they had to have sufficient support and financial systems to use them [31]. Phillips et al. observed that coping, self-esteem and social support systems played a key role in rehabilitation [34]. They emphasized that rehabilitation systems had to be covered by social support systems in order to be financially accessible to patients [34]. In addition, Lin et al. stated that community support systems were able to affect return to society and occupation [13]. However those governmental and non-governmental systems could be useful [29, 38]. Health systems are different depending in many factors, wealth, difference between high income countries and low-middle income countries about the number of neurosurgeons, the care provided to patients and facilities will influence the outcome and the social integration [29, 30, 38]. Therefore, the health system was considered a separate category in the present study.

Community-based support systems were placed in this category and it is special programs for rehabilitation of patients with SCI are planned and implemented by the governmental and non-governmental systems such as supportive NGO association, healthcare system and support associations for patients to increase patients' safety, security, and satisfaction in the community.

Ability to return to previous conditions is important with respect to treatment, the society and the healthcare system because these patients are physically, mentally, and socially impaired. Patients who became employed socially and returned to society experienced more and better more satisfaction [13].

CONCLUSION

Therefore, it is important to have rehabilitation programs for these patients, and it is imperative that healthcare providers and medical staff should offer self-care program and training tailored to each patient's conditions in addition to providing respectful patient care. Moreover, Individual programs should be considered by the healthcare system and supporting associations for the each patient

List of abbreviations:

- SCIs: spinal cord injuries
- WHO: world health organization
- NGO: non-government organizations

Ethics Approval and Consent to participate

This study was approved by Ethical Committee of the Faculty of Nursing and Midwifery and Pharmacy School of Shaid Beheshty University of Medical science with the research code IR.SBMU.PHARMACY.REC.1398.356. Available at: <https://ethics.research.ac.ir/ProposalCertificateEn.php?id=122690&Print=true&NoPrintHeader=true&NoPrintFooter=true&NoPrintPageBorder=true&LetterPrint=true>

Consent to Publish

“Not applicable” Because our manuscript does not contain any individual person's data.

Availability of data and materials

This study was a part of proposal with the research code 19859 approved by Faculty of Nursing and Midwifery of Shahid Beheshty University of Medical science in 2020.

COMPETING INTEREST

The authors declare that they have no competing interests.

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