



Construction of nursing diagnoses for people with spinal cord injury in rehabilitation

Construção de diagnósticos de enfermagem para pessoas com lesão medular em reabilitação
Construcción de diagnósticos de enfermería para personas con lesión medular en rehabilitación

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ABSTRACT

Objective: To construct nursing diagnosis statements of the International Classification for Nursing Practice (ICNP[®]) for the spinal cord rehabilitation specialty based on the Callista Roy Adaptation Model. **Method:** Descriptive study developed in sequential steps of identification and cross-mapping of terms relevant to care with the health priority, construction and cross-mapping of nursing diagnosis statements based on the ICNP[®], and categorization of diagnoses according to adaptive modes. **Results:** Ninety-two statements of nursing diagnoses were developed, of which 66 were classified in the Physiological Mode, 12 in Functional Role Mode, 10 in Self-Concept Mode and four in Interdependence Mode. **Conclusion:** The nursing diagnoses developed portray focuses of attention for nursing care to people with spinal cord injury in rehabilitation and contribute to the direction of nursing care actions in a systematic, individualized and resolute way.

DESCRIPTORS

Nursing; Nursing Diagnosis; Terminology; Classification; Rehabilitation; Spinal Cord Injuries.

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INTRODUCTION

Spinal cord injury (SCI) is a disabling neurological syndrome with important physiological, emotional, social and economic repercussions that require a complex and diversified rehabilitation program aimed at adapting to personal and environmental changes, according to the functional recovery potential of individuals in order to enable their social reintegration and quality of life⁽¹⁾.

As members of the interdisciplinary team, nurses have a prominent role in the rehabilitation process of people with SCI. These professionals are responsible for identifying the care needs and developing nursing diagnoses by adopting a method of critical reasoning and clinical judgment to guide the selection of interventions for the health promotion of these patients⁽²⁾.

Nurses must use conceptual models and a standardized language to guide nursing care in the implementation of the nursing process. Among the existing nursing classification systems, the International Classification for Nursing Practice (ICNP[®]) stands out for representing the nursing concepts (diagnoses, outcomes and interventions) at an international standard, and allowing the structuring of targeted terminological subsets to specific areas of clinical practice⁽³⁾.

As support to classification systems, nurses have several conceptual models for the development of evidence-based actions. Among them, the Callista Roy Adaptation Model has been widely used in clinical nursing practice. The theory defines the person as a holistic and adaptable system that emits adaptive or inefficient responses to the stimuli received; health is a state and a process of becoming a total and integrated person; the environment is made up of all conditions, circumstances and influences affecting a person's development and behavior; and the nursing goal is to promote adaptation in the physiological, self-concept, functional role and interdependence adaptive modes⁽⁴⁻⁵⁾. This theoretical model allows the operationalization of all stages of the nursing process, aiming to promote the adaptation of the individual in the four adaptive modes and can contribute effectively to the rehabilitation and quality of life of people with SCI.

In a study, the need to elucidate the focuses of Nursing practice in order to develop care strategies aimed at the better adaptation of people with SCI to rehabilitation treatment was indicated⁽⁶⁾, hence the relevance of having clarity about the nursing diagnoses in this group to support the nursing care planning.

The construction of ICNP[®] nursing diagnoses for people with SCI undergoing rehabilitation meets international recommendations^(3,7-8) and will result in a facilitating technological tool for the systematized nursing practice, supported by an appropriate theoretical framework to the context of care, clinical reasoning and a standardized nursing vocabulary, in addition to improving clinical practice and offering greater visibility to the profession. In view of the above, the aim of the present study was to construct ICNP[®] nursing diagnosis statements for the specialty of SCI rehabilitation based on Roy's Adaptation Model.

METHOD

TYPE OF STUDY

Descriptive study in which methodological procedures adapted from terminological studies were followed^(3,7-8).

DATA COLLECTION, ANALYSIS AND TREATMENT

The study was conducted from May 2016 to January 2017 structured in five steps: 1) collection of relevant terms for clinical nursing practice in the rehabilitation of people with SCI; 2) mapping of the terms identified onto the terms of the ICNP[®]; 3) construction of nursing diagnosis statements based on the identified terms; 4) mapping of the diagnosis statements constructed onto those contained in the ICNP[®]; and 5) categorization of nursing diagnoses according to Roy's Adaptation Model.

The first step comprised the analysis of the document 'Guidelines for Care to People with Spinal Cord Injury' from the Ministry of Health⁽⁹⁾ and the extraction of terms considered clinically and culturally relevant to the practice of nursing in rehabilitation. This document was chosen because it is a reference guide for multiprofessional health teams for the health care of people with SCI in the different settings of the care network for people with disabilities.

For the operationalization of this step, the tool called Poronto was used. It allows the extraction of simple and compound terms from free texts, and their organization in a list in order of occurrence⁽¹⁰⁾. A list of 2,778 terms with their respective frequencies of appearance was generated, which was exported to an electronic spreadsheet. The terms were manually normalized and standardized by gender, number, synonym, verb tense and spelling. The connecting elements and terms related to medical procedures and diagnostics were excluded, generating a list of 446 terms.

In the second step, the mapping of identified terms was performed, in which they were compared with the terms contained in the ICNP[®] version 2015⁽¹¹⁾, resulting in 333 constant terms and 113 not included in this terminology. These constituted the database terms of the study.

In the third step, the nursing diagnosis statements were constructed, based on the bank of terms developed in the previous step and on guidelines of the International Council of Nurses (ICN) embodied in the ISO 18.104:2014 standard⁽¹²⁾. In addition to these guidelines, clinical judgment and the authors' experience in the area of SCI rehabilitation were considered, which enabled the analysis of the diagnostic hypothesis regarding its relevance for clinical practice.

In the fourth step, the statements of nursing diagnoses constructed were mapped onto the pre-coordinated concepts of the ICNP[®] version 2015, resulting in a list with constant and non-constant nursing diagnoses in this terminology. For non-constant statements, an equivalence analysis process with the ICNP[®] concepts was conducted, using the following criteria: if the identified statement is similar to that of the ICNP[®]; if it is more comprehensive; if it is more restricted; and if there is no agreement, that is, it is a new statement⁽¹³⁾.

In the fifth step, the statements of nursing diagnoses were classified according to the subcategories of the adaptive modes of Roy's theoretical framework.

ETHICAL ASPECTS

The study approval by the Research Ethics Committee was not necessary, since the only data source used was the literature.

RESULTS

The total of 446 terms were identified as relevant to clinical nursing practice with the elected priority, 333 (74.7%) of which were constant and 113 (25.3%) were not included in the ICNP® version 2015. These terms were distributed according to the Seven Axes Model of this classification, resulting in: 82 (18.4%) terms in the Action axis; 12 (2.7%) in the Client axis; 171 (38.3%) in the Focus axis; 29 (6.5%) in the Judgment axis; 61 (13.7%) in the

Location axis; 69 (15.5%) in the Means axis; and 22 (4.9%) in the Time axis.

Based on these terms and the guidelines of the ICN, 92 statements of nursing diagnoses were constructed and then, mapped onto the pre-coordinated concepts of the ICNP® version 2015, resulting in 42 (45.7%) equal statements, 15 (16.3%) similar, three (3.3%) more comprehensive, 20 (21.7%) more restricted, and 12 (13.0%) without agreement with the classification concepts. Statements classified as equal and similar were considered constant. Thus, 57 (62.0%) constant nursing diagnoses and 35 (38.0%) not found in the ICNP® version 2015 were found.

The statements of nursing diagnoses were categorized according to the adaptive modes of Roy's theoretical framework, and distributed as follows: Physiological mode: 66 (71.7%) statements, Functional Role mode: 12 (13.0%) statements, Self-concept mode: 10 (10.9%) statements, and Interdependence mode: four (4.4%) statements – Charts 1 and 2.

Chart 1 – Distribution of nursing diagnosis statements for people with spinal cord injury undergoing rehabilitation according to the Physiological mode – São Luís, MA, Brazil, 2017.

PHYSIOLOGICAL MODE	
Oxygenation	Effective breathing; Impaired breathing; Risk of impaired respiratory system function.
Nutrition	Improved fluid intake; Impaired fluid intake; Overweight; Underweight.
Elimination	Constipation, Bowel incontinence, Urinary incontinence, Stress incontinence of urine, Urge incontinence of urine, Impaired urination, Urinary retention, Risk for constipation; Risk for urinary retention.
Activity and rest	Impaired active range of motion; Musculoskeletal deformity present; Impaired self-feeding; Impaired self-toileting; Impaired ability to perform oral hygiene; Impaired ability to perform hygiene; Self-care deficit; Impaired ability to transfer to the wheelchair; Impaired ability to transfer to the bed; Impaired ability to transfer to the car; Impaired ability to overcome environmental barriers; Impaired ability to dress and undress lower body; Impaired ability to dress and undress upper body; Impaired walking; Impaired wheelchair mobility; Impaired mobility in bed; Risk for musculoskeletal deformity.
Protection	Fever; Impaired hygiene; Postural hypotension; Urinary infection; Pressure ulcer (specify stage and location); Fall-related injury (specify location); Transfer injury (specify location); Thermal injury (specify location); Altered blood pressure; Fall; Risk for complications related to the use of orthoses; Risk for fracture; Risk for infection (specify); Risk for urinary infection; Risk for diaper rash; Risk for pressure ulcer; Risk for fall-related injury; Risk for transfer injury; Risk for falls; Risk for trauma; Risk for deep vein thrombosis.
Senses	Acute pain (specify intensity and location); Chronic pain (specify intensity and location); Musculoskeletal pain (specify intensity and location); Neuropathic pain (specify intensity and location); Sensory absence (specify location); Sensory deficit (specify type and location); Impaired vision.
Fluids and electrolytes	Peripheral edema (specify degree and location).
Neurological function	Communication barrier, Autonomic dysreflexia, Spasticity (specify intensity and location); Risk for autonomic dysreflexia.

Chart 2 – Distribution of nursing diagnosis statements for people with spinal cord injury undergoing rehabilitation by Modes of Functional Role, Self-concept and Interdependence – São Luís, MA, Brazil, 2017.

FUNCTIONAL ROLE MODE	
Impaired ability of caregiver to perform caretaking; Lack of knowledge (specify) of spinal cord injury; Lack of knowledge of medication; Lack of knowledge of the complications of spinal cord injury; Lack of knowledge of the neurogenic bladder management; Lack of knowledge of the neuropathic pain management; Lack of knowledge of the neurogenic intestine management; Lack of knowledge of the rehabilitation process; Lack of knowledge of health policy for people with disabilities; Lack of ability to maintain health; Lack of house safety; Impaired family process.	
SELF-CONCEPT MODE	
Anxiety (specify intensity); Death anxiety; Negative self-image; Low self-esteem; Impaired sexual functioning; Depressed mood; Impaired sexual behavior; Risk for physical abuse directed at third parties; Risk for verbal abuse directed at third parties; Risk for depressed mood.	
INTERDEPENDENCE MODE	
Impaired access to health services; Social isolation; Impaired socialization; Risk for social isolation.	

DISCUSSION

The statements of nursing diagnoses developed were mapped according to the adaptive modes of Roy's Adaptation Model. Most were related to the Physiological Mode in the basic needs associated with oxygenation, nutrition, elimination, activity and rest, and protection, and in the complex processes associated with the senses, fluids and electrolytes, and neurological function.

The Oxygenation basic need may be affected in people with SCI, especially above the T6 level due to complications of the respiratory system, such as impairment of expiratory muscles, reducing the effectiveness of cough for bronchial hygiene. These patients are at a higher risk for atelectasis, respiratory infections and respiratory failure, increasing their susceptibility to hospitalizations and death⁽¹⁴⁾. In the context of rehabilitation, therapeutic interventions should be developed to help respiratory muscle mechanics and the restoration of the effectiveness of cough, preventing respiratory complications⁽¹⁵⁾.

Adequate nutrient intake is of paramount importance for the maintenance of health and better quality of life, included in the Nutrition basic need⁽⁴⁾. People with SCI must prioritize the ingestion of fibers and other laxative foods and control the water intake in order to favor the intestinal and bladder functioning, usually compromised due to the neurological injury and the wound healing process⁽¹⁶⁾. The progressive weight loss or excess weight also represent limiting aspects in the rehabilitation process of these individuals⁽¹⁷⁾.

During rehabilitation, the nutritional approach is supported by the nutritionist, and the nurse also plays an important role in monitoring adherence to the guidelines during hospitalization and in outpatient follow-up consultations, providing adaptive responses to changes in eating habits in the control of weight, blood glucose, cholesterol and blood pressure, prevention of constipation and wound healing.

As a consequence of the interruption of nerves in the spinal cord, messages from the bladder and/or the rectal portion to the brain are unable to pass through the block at the level of injury, which can impair the Elimination basic need. Changes in the pattern of bladder functioning can lead to a condition called neurogenic bladder, characterized by areflexia, hypocontractility or detrusor hyperactivity, with loss or reduction of bladder fullness sensitivity and incomplete bladder emptying, predisposing the patient to a higher risk for urinary tract infection, bladder lithiasis, vesicoureteral reflux and renal complications⁽¹⁸⁾. Changes in intestinal motility depend on the level and extent of the injury, and result in fecal incontinence and/or constipation that can progress to complications if not treated properly⁽¹⁹⁾.

By understanding that vesicointestinal alterations cause physical, social and emotional harm to the life of people with SCI, the early start of a rehabilitation program for these subjects is mandatory. The focus is on adapting to the new condition, teaching techniques to promote the adequate bladder and intestinal emptying, dietary reeducation

and prevention of complications in order to minimize the impacts on quality of life and promote social reintegration.

The Activity and Rest basic need represents the balance of the basic processes of mobility and sleep, essential for the optimal physiological function of all components of the body and periods of restoration and recovery⁽⁴⁾. The impairment of physical mobility in people with SCI is mainly a result of the neurological injury leading to changes in musculoskeletal function to a variable extent, according to the level and type of injury. It can cause multiple functional limitations, generate different degrees of dependence for the performance of activities of daily living and self-care itself. In addition, sequelae of immobility determine social, economic and emotional problems that need to be considered during rehabilitation⁽¹⁾.

The basic need Protection establishes standards related to skin integrity and the body's defenses against environmental agents⁽⁴⁾. People with SCI are vulnerable to skin lesions from the acute phase of the injury until community reintegration, because of changes resulting from reduced mobility and sensitivity below the level of the injury⁽¹⁹⁾. In these individuals, pressure injuries are the most common cause of complication, with incidence varying between 7.5% and 31.7% in rehabilitation units⁽²⁰⁻²¹⁾ and negatively impacting the quality of life of these patients. Falls are also a common problem in this population. They occur mainly at the time of transfers and correspond to 90.0% of non-infectious complications in hospitalized SCI patients⁽²²⁾. Based on these aspects, the rehabilitation nurse should develop a care plan aimed at preventing and treating complications that may result in delay or interruption of the rehabilitation process of these patients.

The Senses complex process concerns people's ability to interact with the environment⁽⁴⁾. In people with SCI, the needs for tactile, painful, vibratory, pressure and proprioceptive perception can be experienced with changes because of neurological sequelae⁽⁹⁾.

Pain after SCI is a highly prevalent clinical condition of difficult management and considered one of the most disabling complications experienced by people in the rehabilitation process⁽²³⁾. Pain can be classified as nociceptive or neuropathic. Nociceptive pain is usually located at or above the neurological level of SCI, originating from somatic or visceral nociceptors. Neuropathic pain is caused by a primary lesion or dysfunction in the central nervous system, and generally characterized by allodynia, hyperesthesia, hyperalgia, hyperpathy, paraesthesia and dysesthesia⁽²⁴⁾. Pain affects the ability to perform cognitive, social, recreational and work activities, interferes in the performance of activities of daily living, and causes a negative impact on the quality of life of these subjects. In this context, the rehabilitation program for patients with SCI must be strictly planned by an interdisciplinary team, aiming at knowledge and control of pain⁽²⁵⁾.

The Fluids and Electrolytes complex process involves maintaining the balance between the body's fluids and electrolytes⁽⁴⁾. Due to immobility and/or prolonged sitting, peripheral edema is common in people with SCI, characterized by the accumulation of fluid in the interstitial

space, affecting mainly the lower limbs⁽²⁶⁾. Given the above, it is necessary to prevent and control peripheral edema in these patients.

The Neurological Function complex process may be affected due to motor, sensory and/or autonomic changes secondary to SCI. This requires the introduction of a complex and individualized rehabilitation program with a view to early prevention and treatment of complications and functional gain according to the level of injury and the patient's potential⁽⁹⁾.

Spasticity is one of the most frequent and disabling disorders seen in people with SCI. It is the increase of muscle tone (hypertonia), somatic reflexes (hyperreflexia), clonus and painful spasms in response to the hyperexcitability of the stretch reflex. This factor has serious consequences for the patient, can cause disability, prevent or hinder the performance of activities of daily living, cause contractures and deformities, and increase the risk for the occurrence of pressure injuries and falls⁽²⁷⁾. Therefore, it is mandatory that nurses, together with other professionals in the rehabilitation team, assess whether spasticity is a limiting factor in this process aiming at its control and prevention of complications.

Autonomic dysreflexia is another clinical complication secondary to SCI, characterized as a hypertensive crisis, usually accompanied by bradycardia, severe headache, piloerection, profuse sweating, pupil dilation and skin flushing, triggered by nociceptive or visceral stimuli below the level of the injury. It commonly occurs in patients with SCI above the T6 level. Innumerable stimuli can trigger this reflex, such as the distension of visceral organs (bladder and intestine), skin lesions, pressure in the body segments without protective sensitivity, paronychia, among others. The treatment consists of identifying the harmful stimulus and its elimination, and it is the responsibility of the rehabilitating nurse to teach and educate the patient/family/caregiver for the recognition, prevention and control of this complication⁽²⁷⁾.

It is noteworthy that psychosocial aspects were also contemplated with statements of nursing diagnoses, giving people with SCI the possibility of being attended in all factors influencing their adaptation during the rehabilitation process.

The Functional Role Mode focuses on the social aspects related to the roles occupied by the person in society⁽⁴⁾. During the rehabilitation program, professionals from the interdisciplinary health team, including nurses, perform education, prevention and health promotion actions for patients, caregivers and family members, creating favorable conditions for maintaining functionality, aiming at the social reintegration of people with SCI. To this end, individuals need to assign new meanings to their existence in order to adapt to their current condition⁽²⁷⁾. However, some behaviors, such as not accepting the new condition, lack of knowledge of the prognosis and treatment or difficulty in adhering to guidelines can be considered as limiting factors in this process.

The Self-Concept Mode encompasses psychological and spiritual aspects that the person has about him/herself, and is divided into two components: the physical self (encompasses sensation and body self-image) and the personal self

(encompassing the consistency self, the ideal self and the ethical-moral-spiritual self)⁽⁴⁾. The numerous sequelae of SCI have an impact on self-image, on the recognition of the new physical condition, on interpersonal relationships and on those with the surrounding environment. This can generate anger, insecurity, fear, feelings of inferiority, hopelessness, low self-esteem, among others. The nurse and other professionals of the multidisciplinary team must be prepared to provide emotional support to patients and assist them in coping with their new condition throughout the rehabilitation process⁽²⁸⁾.

The Interdependence Mode focuses on interactions related to giving and receiving affection, respect and value, and covers the interactive relationships maintained between the person and others in an attempt to satisfy their needs⁽⁴⁾. The onset of SCI significantly changes the lives of individuals in the most varied aspects, which can lead to social isolation given the difficulty with expressing emotions and facing the new condition. During the SCI rehabilitation process, strategies to help individuals' adaptation to the situation are sought by stimulating their social participation, family involvement and the expansion of support networks. This contributes significantly to reintroduce people with SCI into family and social life⁽²⁹⁾.

The present study has limitations, such as the absence of indicators for the construction of nursing diagnoses related to sleep (included in the basic need Activity and Rest) and the Endocrine Function complex process. This fact needs to be corrected, as these components are fundamental to produce an optimal physiological function of the whole organism, therefore, must be considered by the rehabilitating nurse in care planning. It is also noteworthy that the bank of terms and the nursing diagnoses constructed were not validated by specialists, showing the importance of further studies with the aim to promote content validation and assessment of their applicability in clinical practice.

However, the product of this investigation can guide nurses' critical reasoning and clinical judgment in planning nursing interventions upon the use of a standardized language, thereby contributing to the effective application of the nursing process in the rehabilitation of people with SCI in all stages. Thus, one suggests further studies on the construction of statements of nursing interventions to structure a terminological subset of the ICNP[®] with the aim to operationalize the systematization of nursing care in the context of rehabilitation, enable the documentation of care practices, and facilitate communication between nurses, leading to important benefits for the profession.

CONCLUSION

The statements of nursing diagnoses developed portray focuses of attention for nursing care to people with SCI undergoing rehabilitation from data evidenced in specialized documentation, based on theoretical nursing references and a standardized language, contributing to direct nursing care actions in a systematic, individualized and resolute manner. Other diagnoses can be included in this nomenclature, based on the individual needs of each person.

RESUMO

Objetivo: Construir enunciados de diagnósticos de enfermagem da Classificação Internacional para a Prática de Enfermagem (CIPE®) para a especialidade de reabilitação em lesão medular, com base no Modelo de Adaptação de Callista Roy. **Método:** Pesquisa descritiva desenvolvida em etapas sequenciadas de identificação e mapeamento cruzado de termos relevantes para o cuidado com a prioridade de saúde, construção e mapeamento cruzado de enunciados de diagnósticos de enfermagem, com base na CIPE®, e categorização dos diagnósticos segundo os modos adaptativos. **Resultados:** Foram elaborados 92 enunciados de diagnósticos de enfermagem, dos quais 66 foram classificados no Modo Fisiológico, 12 no Modo Papel Funcional, 10 no Modo Autoconceito e quatro no Modo Interdependência. **Conclusão:** Os diagnósticos de enfermagem elaborados retratam focos de atenção para o cuidado de enfermagem a pessoas com lesão medular em reabilitação, contribuindo para o direcionamento das ações da assistência de enfermagem de forma sistematizada, individualizada e resolutive.

DESCRITORES

Enfermagem; Diagnóstico de Enfermagem; Terminologia; Classificação; Reabilitação; Traumatismos da Medula Espinal.

RESUMEN

Objetivo: Construir enunciados de diagnóstico de enfermería de la Clasificación Internacional para la Práctica de Enfermería (CIPE®) para la especialidad de rehabilitación de la médula espinal, basados en el Modelo de Adaptación de Callista Roy. **Método:** Estudio descriptivo desarrollado en pasos secuenciales de identificación y mapeo cruzado de términos relevantes para el cuidado con la prioridad de salud, construcción y mapeo cruzado de enunciados de diagnóstico de enfermería con base en la CIPE® y la categorización de diagnósticos según modos adaptativos. **Resultados:** Se desarrollaron 92 enunciados de diagnósticos de enfermería, de los cuales 66 se clasificaron en Modo Fisiológico, 12 en Modo Rol Funcional, diez en Modo Autoconceito y cuatro en Modo Interdependencia. **Conclusión:** Los diagnósticos de enfermería desarrollados retratan focos de atención para el cuidado de enfermería a personas con lesión medular en rehabilitación, contribuyendo a la dirección de las acciones de cuidados de enfermería de manera sistemática, individualizada y resolutive.

DESCRIPTORES

Enfermería; Diagnóstico de Enfermería; Terminología; Clasificación; Rehabilitación; Traumatismos de la Médula Espinal.

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