

# Nursing diagnoses for urinary disorders in patients with Parkinson's disease

Diagnósticos de Enfermagem sobre alterações urinárias na doença de *Parkinson*

Débora Moraes Campos<sup>1</sup>

Michelle Hyczy de Siqueira Tosin<sup>2</sup>

Luciana Blanco<sup>1</sup>

Rosimere Ferreira Santana<sup>2</sup>

Beatriz Guitton Renaud Baptista de Oliveira<sup>2</sup>

## Keywords

Parkinson's disease; Urinary incontinence; Geriatric nursing; Nursing diagnosis

## Descritores

Doença de *Parkinson*; Incontinência urinária; Enfermagem geriátrica; Diagnóstico de enfermagem

## Submitted

November 7, 2014

## Accepted

November 26, 2014

## Corresponding author

Débora Moraes Campos  
Embaixador Abelardo Bueno Avenue,  
1500, Rio de Janeiro, RJ, Brazil.  
Zip Code: 22775-040  
campos.debora@bol.com.br

## DOI

<http://dx.doi.org/10.1590/1982-0194201500032>

## Abstract

**Objective:** To analyze the mapped nursing diagnoses included in the Urinary Function class, Elimination and Exchange domain of the NANDA International taxonomy, for Parkinson's disease patients from a rehabilitation program.

**Methods:** A descriptive, cross mapping study whose primary source of data was 67 electronic medical records with five or more nursing assessments recorded. Electronic data collection was performed in three steps: identification of terms, mapping and validation.

**Results:** The scope of the taxonomy was observed for identifying urinary changes. Seven nursing diagnoses were mapped. *Impaired urinary elimination* was the most common (60%) and, in most cases, was associated with other specific diagnoses, such as *urge* (55%), *reflex* (25%), *stress* (12%), *overflow* (10%) and *functional urinary incontinence* (6%).

**Conclusion:** The analysis of the mapped nursing diagnoses indicates the complexity of urinary disturbances in patients with Parkinson's disease.

## Resumo

**Objetivo:** Analisar os Diagnósticos de Enfermagem mapeados e contidos na classe "Função Urinária" do domínio Eliminação e Troca da taxonomia proposta pela NANDA- Internacional, em portadores de doença de *Parkinson* em programa de reabilitação.

**Métodos:** Estudo descritivo de mapeamento cruzado cuja a fonte primária de dados foram 67 prontuários eletrônicos com registro de cinco ou mais evoluções de enfermagem. A coleta eletrônica de dados foi realizada em três etapas: levantamento dos termos, mapeamento e validação.

**Resultados:** Foi observada a abrangência da taxonomia na identificação das alterações urinárias. Foram mapeados sete diagnósticos de enfermagem. A "Eliminação urinária prejudicada" foi o mais frequente (60%) e, na maioria dos casos, esteve associada a outros diagnósticos específicos, como as incontinências urinárias por urgência (55%), reflexa (25%), por esforço (12%), por transbordamento (10%) e funcional (6%).

**Conclusão:** A análise sobre os diagnósticos de enfermagem mapeados indicam a complexidade das alterações urinárias em pacientes com doença de *Parkinson*.

<sup>1</sup>Rede Sarah Hospitais de Reabilitação, Rio de Janeiro-RJ, Brazil.

<sup>2</sup>Universidade Federal Fluminense, Rio de Janeiro-RJ, Brazil.

**Conflicts of interest:** there are no conflicts of interest to declare.

## Introduction

Parkinson's disease is a neurological and progressive disorder characterized by an association of motor and nonmotor changes. Among the motor changes, the cardinal symptoms of the disease are highlighted: tremor, rigidity, dyskinesia and postural imbalance. Non-motor symptoms are characterized by autonomic (bladder, bowel, postural hypotension, and dysphagia) and mental dysfunctions (mood changes, cognitive and psychiatric).<sup>(1)</sup>

Urinary dysfunction, a nonmotor symptom, is one of the most common autonomic manifestations in Parkinson's disease (PD) and has different pathophysiology, described as sphincter dyssynergy, detrusor overactivity and detrusor with a hypo- or areflexic activity.<sup>(2)</sup> The vascular changes in PD can be potentiated by comorbidities, such as prostatic hyperplasia in men and obstetric history in women. It may also be potentiated by motor deficits from the disease itself, in both sexes.<sup>(2)</sup>

In most cases, the symptoms of urinary dysfunction have little influence on the motor symptoms of the patient with PD, except in cases of urinary tract infection. However, it is clear in clinical practice that the disease leads to an impact on the quality of life. In this context, the management and treatment of bladder symptoms call for a multidisciplinary approach to the rehabilitation program.

To achieve significant results in the treatment of this condition, it is essential to use accurate descriptions of the symptoms described by the patient. The selection of the signs and symptoms reported by patients should be made in detail, both for planning of the treatment as well as to guide the clinical reasoning of nurses.<sup>(3)</sup>

Currently, studies related to urinary disorders in individuals with PD focus mostly on pharmacological treatment, such as the use of anticholinergic medications and alpha blockers.<sup>(3)</sup> However, there are few studies that address the nurse in relation to differential nursing diagnosis or to substantiate the conduct of nursing professionals.<sup>(1,4)</sup>

The term "differential diagnosis" leads to the context of the nursing process and the use of

standardized language, through a selected classification system. This is an invaluable resource in the modern world, especially in transmitting information, scientific communications, technological and professionals.<sup>(4)</sup> Among the various nursing classification systems, there is the taxonomy proposed by NANDA International (NANDA-I), created as a tool for diagnostic standardization.<sup>(4)</sup>

Given the above, this study aimed to analyze the mapped Nursing Diagnoses included in the class "Urinary Function", inserted in the domain of Elimination and Exchange of NANDA-I taxonomy, based on records of patients with Parkinson's disease of the rehabilitation program.

## Methods

This is a clinical, observational, descriptive, quantitative and retrospective study, developed in accordance with the methodological procedure proposed by cross-mapping. The primary source for data collection was the electronic medical record, in which the nursing diagnosis was described in a non-standard pattern. The cross-mapping was selected because allows the linguistic and semantic comparison between non-standardized terminologies with the NANDA-I classification system.<sup>(5,6)</sup>

The study was conducted at the International Center for Neurorehabilitation and Neuroscience, inaugurated in May 2009 and located in the city of Rio de Janeiro (RJ), in southeastern Brazil. The institution receives adult patients and children with congenital or acquired lesions of the central and peripheral nervous system.

In order to delineate the study population, was verified that, between May 2009 to April 2013, 1,266 patients were admitted with the diagnosis of Parkinson's disease (G20.0), according to the International Classification of Diseases (ICD10). For sampling definition, we chose to use as a criterion for inclusion, the records which five or more nursing evaluation was present. The exclusion criteria included those record containing, other medical diagnoses in addition to the diagnosis of Parkinson's disease,

which characterized other parkinsonian syndromes, such as secondary parkinsonism (G21), for example.

Thus, a total of 148 records were obtained. Given the magnitude of the sample, the sample calculation for descriptive studies, with probability sample, the simple random type was used through the formula:

$$n_0 = 1/(E_0)^2 e n = N.n_0/N+n_0$$

In this case were considered: N = population size (148 records); E0 = tolerable sampling error (9%); n0 = first approximation of the sample size (123 records); and n = sample size (67 records). Thus, the sample was composed of 67 records, representing 45% of the total population, considering the sampling error of 9% and 95% confidence interval.

Data collection to the composition of a database occurred electronically and was performed in three steps: identification of terms, mapping of nursing diagnoses and validation of nursing diagnoses.

In the first step a first Excel spreadsheet for Windows were developed with the following areas: patient data; medical diagnosis and clinical characteristics of presentation of Parkinson's disease; evolution excerpts in usual language of the team; nonstandard terms of nursing to indicate diagnostic hypotheses. These data were submitted to spelling corrections, adjustment of verbal tenses, uniformity of gender and number and exclusion of repetitions, synonyms and casual expressions, which do not designate particular concepts.

In the second stage, the mapping of Nursing Diagnoses itself, a second spreadsheet was developed, specifically containing nine nursing diagnoses of class "Urinary Function" of domain Elimination and Exchange of NANDA-I classification. The database was organized with the following elements: title diagnosis; definition; related factors (causal factors associated with diagnoses); and defining characteristics (confirmatory clinical evidence of the presence of diagnoses). Per process analysis of the spreadsheets, the establishment of comparing between the terms non-standard taken from the records to standard terms by NANDA-I was possible.

For the cross-mapping of the nursing diagnoses, the rules to map the context of Nursing Diagnosis as well as the meaning of words and not just words were used.

In the third stage, the patient data, terms of Nursing and comparison with the NANDA-I classification were analyzed by two specialist nurses in the area of Nursing Classification and three of Parkinson's disease area. For selection of experts, the practical experience were considered (minimum of five years experience) or having doctorate and experience in research on System of Nursing Classification. The validation occurred in two cycles, individual first and second in groups. After the second cycle, the consensus of experts was obtained and the data presented in this study, descriptively, were derivate in exact agreement on 100% of the evaluators. Given the consensus among experts, after the second cycle, the statistical analyze agreement was no longer necessary.

The development of the study followed national and international standards of ethics in research involving human subjects.

## Results

The sample consisted of 67 records of patients with Parkinson, 63% of them males. The mean age was 69.3 years and the duration of the disease was 1-24 years.

98 Nursing Diagnoses were mapped obtaining seven different diagnoses corresponding to the class "Urinary Function" in Elimination and Exchange domain. The principal terms extracted from medical records and contextualized as related factors of Nursing Diagnoses were "age", "Parkinson's disease", "volumetric enlargement of the prostate" and "motor deficit," described in NANDA-I taxonomy as "sensory-motor impairment", "Multiple causality" and "neurological impairment". The diagnosis of "impaired urinary elimination" and "urge urinary incontinence" were the most mapped, on 41 and 38% of the files (Table 1).

**Table 1.** Cross-mapping class of Nursing Diagnoses of class “Urinary Function”, of Elimination and Exchange domain, according to NANDA-I, in the records of patients with Parkinson’s disease of an rehabilitation program

NANDA-I domain	NANDA-I class	Nursing diagnosis according to NANDA-I (code)	n(%)
Elimination and Exchange	Urinary function	Impaired urinary elimination (00016)	40(41)
		Urge urinary incontinence(00019)	37(38)
		Reflex urinary incontinence (00018)	7(7)
		Stress urinary incontinence (00017)	4(4)
		Functional urinary incontinence (00020)	4(4)
		Overflow urinary incontinence (00176)	4(4)
		Readiness for enhanced urinary elimination(00166)	2(2)
		Total	98(100)

The survey data showed that in 52.5% of cases in which the diagnosis of “impaired urinary elimination” was present, a second diagnosis was associated, especially to “urge urinary incontinence,” as shown in table 2. This was due to the fact that the patient had symptoms consistent with the defining characteristics to the corresponding diagnostics.

**Table 2.** Frequency of Nursing Diagnosis “impaired urinary elimination,” according to the taxonomy of NANDA-I, associated with other diagnoses contained in the class “Function Urinary”, Elimination and Exchange domain

Association among the nursing diagnosis of Urinary function class	n(%)
Impaired urinary elimination AND Urge urinary incontinence	21(70)
Impaired urinary elimination AND overflow urinary incontinence	3(10)
Impaired urinary elimination AND Functional urinary incontinence	3(10)
Impaired urinary elimination AND Readiness for enhanced urinary elimination	1(3)
Impaired urinary elimination AND Reflex urinary incontinence	1(3)
Impaired urinary elimination AND Stress urinary incontinence	1(3)
Total	30 (100)

For a better understanding of how the interrelationship between the diagnoses, table 3 describe the defining characteristics that enabled the clinical reasoning in selecting the most appropriate diagnosis during the mapping process. Of the 113 defining characteristics mapped, there was a prevalence of “Reports involuntary loss of urine with bladder contractions” (33%), followed by “Nocturia” (19%).

**Table 3.** Defining characteristics of diagnoses, according to NANDA-I, identified in records of patients with Parkinson’s disease of rehabilitation program

Nursing diagnosis NANDA - I	Defining characteristics NANDA-I	n(%)
Impaired urinary elimination	Nocturia	22(19)
	Frequent voiding	17(15)
	Urinary urgency	14(12)
	Reports involuntary loss of urine with bladder contractions	37(33)
Urge urinary incontinence	Sensation of urgency to void without voluntary inhibition of bladder contraction	7(6)
Reflex urinary incontinence	Involuntary leakage of small volume of urine (with coughing, laughing, sneezing on exertion)	2(2)
	Reports involuntary leakage of small volume of urine (with coughing, laughing, sneezing on exertion)	2(2)
Stress urinary incontinence	Involuntary leakage of small volume of urine (with coughing, laughing, sneezing on exertion)	2(2)
	Reports involuntary leakage of small volume of urine (with coughing, laughing, sneezing on exertion)	2(2)
Functional urinary incontinence	Time between sensation of urge and ability to reach the toilet is too short	3(3)
	Completely empties bladder	1(1)
Overflow urinary incontinence	High post void residual volume	4(4)
	Bladder distention	4(4)
Total		113(100)

## Discussion

Although it is recognized the inherent methodological limitation to cross mapping, as data collected retrospectively and with different professional records, the reliability and validity of the data reported by the specific characteristics of the study location, such as the uniform staff training; the definition of patients by specialty; and the detailed record of the multidisciplinary team. Such characteristics contribute to the strength of the data. Even though the nurses have not formally performed the nursing diagnosis, the collecting data was ease, and from that starting point, the selection of the Nursing Diagnoses.

It is common the association of Parkinson’s disease with motor limitations in clinical practice, however, little is discussed about urinary bladder changes related to this comorbidity. Thus, it was necessary to pay attention to the magnitude of the occurrence of diagnostic class “Urinary Function” and as its main characteristics contributed to demonstrate an important nursing practice area in Parkinson’s disease and rehabilitation.

The majority mapping of diagnosis “impaired urinary elimination” was able to reveal the high incidence of nocturia, increased frequency and urgency in patients with Parkinson's. Despite the bladder status detail of these patients, other features could be established and subsidized diagnostic choices of nurses.

The coexistence of nursing diagnoses mapped within the same class of the taxonomy was observed in this study. There was, then, the need to assess the hierarchy of diagnostics so that, in a more assertively way, the treatment plan of the patient could be defined. The taxonomy of NANDA-I admits the existence of a hierarchical tree of Nursing Diagnoses. In accordance with this reasoning, the presence of natural defining characteristics to different diagnostic mapped were observed.<sup>(6)</sup>

After mapping, it was observed that the same patient could, for example, present “nocturia” and “reports of involuntary loss of urine with bladder contractions,” defining characteristics of the diagnosis of “impaired urinary elimination” and “urge urinary incontinence” respectively. There was coexistence of accurate diagnosis and need for discussion on the need for organizing them hierarchically.<sup>(4,7)</sup> In this context, the diagnosis of “Urge Urinary Incontinence” was considered hierarchically superior in relation to “impaired urinary elimination.”<sup>(7)</sup> Data indicate that nurses in the area of rehabilitation, after identifying bladder change has tended to investigate specific signals and thus identify hierarchically higher diagnosis. From this process, the nurse could deepen their research and determine the best diagnosis that guide their practice and the therapeutic procedure.<sup>(7)</sup>

The data also revealed the extent of the NANDA-I taxonomy in the identification of urinary disturbances in patients with Parkinson's disease and showed the complexity of them, since of the nine diagnoses in that class, seven were mapped. Studies related to the nonmotors symptoms not Parkinson's disease reported the high prevalence of bladder changes, revealing its existence in 38-71% of patients. In these studies, there was no discrimination of different types of bladder changes.<sup>(2,3)</sup>

“Urge Urinary Incontinence” was considered a specific diagnosis and, according to the publications on the subject, is related both to own Parkinson's disease due to overactivity of the detrusor muscle of the bladder, as other causes, such as idiopathic presentation seen in men and women aged over 65 years, due in part of latent cerebral ischemia.<sup>(3)</sup>

The Nursing Diagnosis “Overflow urinary incontinence”, identified in the survey reaffirmed the multiple causes of bladder symptoms in patients with Parkinson's. Overflow urinary incontinence, was associated to men with benign prostatic hyperplasia, which is a chronic, complex, progressive disease and which is related to lower urinary tract symptoms, in addition to affecting the quality of life of affected patients. It was considered the most common urological disease and the leading cause of outpatient care to specialists, and is the second cause of surgery. The prevalence for men of 40 years and older was estimated at 17%, going to 30% in men over 70 years old.<sup>(8)</sup>

The Nursing Diagnosis “urinary incontinence” was related to a common condition of older women, often, having urine losses related to the weakening of the pelvic floor muscles. The problem can occur at any age, but the prevalence and degree of urinary incontinence in women increases with age. For isolated stress urinary incontinence, the prevalence in women aged between 15 and 64 is 10 to 40%.<sup>(9)</sup>

## Conclusion

The survey of a variety of terms, as from the non-standard language, reaffirmed the complexity of urinary disturbances in patients with Parkinson's disease. Impaired urinary elimination diagnosis was more present in the mapping. The standardization of language in this context enables the normalization and improvement of care, and facilitates the exchange of information among researchers of the subject.

## Collaborations

Campos DM; Tosin MHS; and Blanco L collaborated in the design stages of the study, analysis, data



interpretation, article writing, critical review of the relevant intellectual content and final approval of the version to be published. Santana RF and Oliveira BGRB declare that contributed to the writing of the article, relevant critical review of the intellectual content and final approval of the version to be published.

## References

1. Fahn S, Jankovic J, Hallett M. Principles and practice of movement disorders. 2nd ed. New York: Elsevier; 2011.
2. Vázquez-Sánchez F, Rodríguez-Martínez E, Arés-Luque A. [Urinary disorders, sexual dysfunction and hipersexuality in Parkinson's disease]. *Rev Neurol*. 2010; 50 Suppl 2:S27-31. Spanish.
3. Sakakibara R, Uchiyama T, Yamanishi T, Kish M. Genitourinary dysfunction in Parkinson's disease. *Mov Disord*. 2010; 25(1):2-12.
4. Tastan S, Linch GC, Keenan GM, Stifter J, McKinney D, Fahey L, et al. Evidence for the existing American Nursing Association – recognized standardized nursing terminologies: a systematic review. *Int J Nurs Stud*. 2014; 51(8):1160-70.
5. Kym TY, Coenen A, Hardiker N, Bartz CC. Representation of nursing terminologies in UMLS. *AMIA Annu Symp Proc*. 2011; 2011:709-14.
6. Juvé Udina ME, Gonzalez Samartino M, Matud Calvo C. Mapping the Diagnosis Axis of an Interface Terminology to the NANDA International Taxonomy. *ISRN Nurs*. 2012; 2012:676905.
7. Paans W, Sermeus W, Nieweg RM, Krijnen WP, Van der Schans CP. Do knowledge sources and reasoning skills affect the accuracy of nursing diagnoses: a randomized study. *BMC Nurs*. 2012;11:11.
8. Navarro-Pérez J, Peiró S, Brotons-Muntó F, López-Alcina E, Real-Romaguera A; en nombre del Grupo de trabajo del Programa de Formación e Investigación en Hiperplasia Benigna de Próstata de la Comunidad Valenciana. [Quality of care indicators for benign prostatic hyperplasia. A qualitative study]. *Aten Primaria*. 2014; 46(5):231-7. Spanish.
9. Dannecker C, Friese K, Stief C, Bauer R. Urinary incontinence in women: part 1 of a series of articles on incontinence. *Dtsch Arztebl Int*. 2010; 107(24):420-6.