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# A profile of nursing diagnoses in patients with multiple sclerosis: a cross-sectional study

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## ABSTRACT

**Aim**: identify the most frequent nursing diagnoses in patients with multiple sclerosis hospitalized in a neurological unit. **Method:** This is a cross-sectional, quantitative study, conducted in the period from January to August 2014 with 58 patients in a teaching hospital in northeastern Brazil, following the relevant steps: data collection through validated instrument; process analysis and validation in pairs according to the nursing diagnoses; and, finally, inferential analysis. **Results:** 30 nursing diagnoses were identified, the most common were: impaired physical mobility; activity intolerance, impaired urinary excretion; impaired memory; impaired pattern of sleep; self-care deficit for feeding; ineffective coping; constipation; sexual dysfunction and chronic pain. **Conclusion**: The most common diagnoses identified are in the fields of activity/rest, disposal and exchange coping/stress tolerance, perception/cognition, comfort and sexuality.

**Descriptors:** Nursing Diagnosis; Multiple Sclerosis; Nursing Process.

## INTRODUCTION

Multiple sclerosis (MS) is a demyelinating disease of autoimmune etiology, and is among the leading causes of nontraumatic neurological disability in young adults. Despite this, there is little information about the epidemiology, as well as the availability of resources and services for the care of these patients in the largest part of the world [1-3].

According to a census conducted by the International Federation of Multiple Sclerosis, with support from the World Health Organization (OMS from the Portuguese Organização Mundial de Saúde), the estimated number of people with MS increased from 2.1 million in 2008 to 2.3 million in 2013. The average global prevalence used to calculate this value increased from 30 (in 2008) to 33 per 100,000 (in 2013), especially for the countries of North America and Europe, where the number of cases exceeds 100 per 100,000 individuals. In South America, Brazil presents itself as second in prevalence of the disease, with a rate of 15 cases for every 100,000 inhabitants[4].

This increase was possibly attributed to an improvement in diagnostic methods, to an increase in patient survival, and to an increase in the incidence of the disease[2].

The census also noted a disparity in the structure of care for MS in different regions of the world. In developed countries there is an average of 4.7 neurologists per 100 thousand inhabitants, while in low-income countries that number drops to 0.04. The same applies to the availability of diagnostic tools such as magnetic resonance imaging, and access to treatment, which are directly related to each nation's development category [4].

The forms of treatment of MS, with the development of nanotechnology, are progressive and attempt to attenuate the disease. Thus, the types of therapies can be traditional, as with the use of glucocorticoids and immunomodulators, or advanced, as with the use of a combination of therapies between statins and fingolimodes. In addition, there are complementary methods such as the use of vitamin D, and physical and occupational therapy[2,3].

The MS patient demands multidisciplinary care due to the complexity of the disease and treatment. In this context, the nurse can promote individualized care, integral and humanized through the nursing process, which directs the nursing care, facilitating the adaptation of the patient and his family to the disease and treatment [5].

The nursing process is grounded in clinical reasoning and involves five stages: research, nursing diagnosis, planning, implementation and evaluation[6]. The stage related to nursing diagnosis is significant and relevant, providing the basis for nursing interventions to achieve outcomes for which the nurse is responsible, and contributing to their own professional language[7].

One of the classifications most used disseminated worldwide to determine the nursing diagnoses is the NANDA International (NANDA-I). This taxonomy is defined as an ordered classification of focuses diagnoses that interest to the nursing, divided into three levels: domains, classes and nursing diagnoses. The taxonomy has 13 domains and 47 classes, and within these are diagnostics[7].

Thus, to support and justify the realization of this study, a search of prior scientific publications on this theme was carried out in the computerized databases of the Virtual Health Library (BVS): Latin American and Caribbean Literature (Lilacs) and International Literature in Health Sciences and Biomedical (Medline); Scopus and The Cumulative Index


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to Nursing and Allied Health Literature (CINAHL). There was a predominance of studies aimed at clinical and individual models of MS patients with the study case-control designs and trial and quantitative approach.

However, there was lack of studies on nursing diagnosis of NANDA-I in neurology units, mainly related to patients with MS. In this sense, conducting research on nursing diagnosis brings benefits not only for patients with MS, which will have a targeted assistance to their real needs as well as to the strengthening of nursing as a science. It is noteworthy also that a safe and effective assistance, based on commitment and knowledge, constitutes an essential factor for patient safety.

It is interesting that the participant research institution still does not use a systematization of care through the nursing process to direct nursing care. Therefore, the definition of the diagnoses presented by these patients contributes to the beginning of a process of transformation, with contributions in assisting and consequent recognition for the institution.

Therefore, it is believed that this study will provide contributions in teaching, research and mainly of health care, because it is through a survey of the problems/needs presented by these patients that nurses can propose actions that direct care with scientific evidence demonstrating the relevance of this study.

Based on these, the following question arose: What are the most frequent nursing diagnoses in MS patients hospitalized in a neurological unit? Thus, this study aimed to identify the most frequent nursing diagnoses in MS patients hospitalized in a neurological unit.

## METHOD

This was a cross-sectional study with a quantitative approach, performed in the neurology unit of a university hospital in northeastern Brazil. The population consisted of 140 patients regularly monitored and assisted by the unit. The calculation of the size of the sample is given by the formula for finite populations taking into account a confidence level of 95% ($Z\infty = 1.96$), a sampling error of 10%, the population size and prevalence (8). The sample consisted of 58 patients.

The selection of patients was obtained by a consecutive type of convenience sampling. Therefore, the following inclusion criteria were adopted: to have a medical diagnosis of MS; to be in hospital treatment in the neurology sector; aged greater than or equal to 18 years. The exclusion criteria were: patients with other comorbidities in addition to MS that could change the human responses of these patients, such as cancer, chronic kidney disease, heart disease and infectious and contagious diseases; it would be unclear whether these responses are related to MS or to these comorbidities. Thus, we excluded five patients of that population. The study was based on the NANDA-I[9].

To collect data, we used an instrument composed of an interview form and a physical examination, with open and closed questions about the socio-economic data and the defining characteristics, related/risk factors present in NANDA I. For better accuracy of the statements, have been used twelve of the thirteen domains of NANDA I Taxonomy II as guidance excluding the domain of growth and development by having no relation to the objective of this study. Subsequently, the study was evaluated by eight judges with experience in the areas of nursing diagnosis and

neurology, and who endorsed it according to its appearance and content to verify adequacy and relevance, as well as identifying the existence of gaps.

Next, adjustments to the instrument were applied to a pre-test with 10% of the sample, in order to evaluate the applicability and the need for changes in the data collection instruments. As there was no need to change the instrument, the participants of the pre-test were included in our sample. Data collection with patients occurred in the period from January to August 2014.

The analysis of nursing diagnoses was processual, and held concurrently with the collection of data in order to identify the defining characteristics and related/risk factors according to NANDA-I, version 2012-2014. The authors of this study assessed patients in pairs, and the structure of the nursing diagnosis followed the steps of the clinical judgment of Gordon [10].

After construction of the diagnosis, they were subjected to a process of validating the content by experts. Thus, for each patient was drawn up a spreadsheet using Microsoft Excel for Windows, containing the list of defining characteristics and related/risk factors present in each diagnostic investigation. Three nursing assistants and two nursing professors who worked in the unit of neurology participated as experts. These professionals were included in the validation, given their experience and expertise in the clinic. Their task was to judge the presence or absence of diagnoses for each patient by the presence or absence of the defining related characteristics/factors, and of the risk previously selected.

For treatment of the collected data the instruments were numbered, and the variables coded and entered into a database built in Microsoft Excel for Windows. Data were analyzed using descriptive statistics. To analyze the degree of agreement among experts, we opted for the Kappa index, analyzed by the software Statistical Package for the Social Sciences (SPSS) version 20.0. Kappa values> 0.80 are considered as a good level of agreement.

Then immediately after treatment of the data, inferential analysis was performed between the nursing diagnoses that showed a concordance index (CI) ≥ 0.80, using two statistical tests: Chi-square Pearson and Fisher's exact test (expected frequencies lower than five) to verify the statistical association between nursing diagnoses and their respective defining characteristics, related factors and risk factors ($p < 0.05$). The analysis was based on reading the descriptive statistics as well as the analysis of the p value found with their comments. For statistical significance a level of 5% was adopted. Data were presented in tables and discussed according to the literature.

The research met the ethical principles of research involving human subjects, with a favourable opinion of the Ethics Committee in Research of the Federal University of Rio Grande do Norte (UFRN), Nº. 267215, and the Presentation Certificate for Appreciation Ethics Nº 11984212,4,0000,553.

## RESULTS

The study included 58 patients, mostly women (84%), aged from 20 to 40 years (average of + 30.32), married (62%), who had completed a primary education (72%), have an income of one to two minimum wages (57.2%), Caucasian (60%) and who came from the countryside of the State (75%). Regarding


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the characterization of specialist nurses, they had worked in the study unit for, on average, 10.5 years; two have a master's degree and three have doctorates; all of them have published articles related to MS.

Within the data we found 30 affirmative nursing diagnoses for patients with MS. These obtained an IC ≥ 0.80 among specialist nurses and are shown in Table 1.

**Table 1** - Distribution of nurse diagnoses in patients with multiple sclerosis. Natal, 2014.

| NURSE DIAGNOSES (IC> 0.80) | Present | Absent |
|---|---|---|
| | n(%) | n(%) |
| Impaired physical mobility | 100 | 0 |
| Activity intolerance | 92 | 8 |
| Impaired urinary elimination | 89 | 11 |
| Impaired memory | 84 | 16 |
| Sleep impaired pattern | 83 | 17 |
| Constipation | 81 | 19 |
| Ineffective coping | 79 | 21 |
| Chronic pain | 75 | 25 |
| Self-care deficit for feeding | 69 | 31 |
| Sexual disfunction | 51 | 49 |
| Ineffective family control of therapeutic regimen | 48 | 52 |
| Anxiety | 48 | 52 |
| Stress syndrome due to changes | 46 | 54 |
| Ineffective denial | 45 | 55 |
| Chronic sadness | 44 | 56 |
| Fear | 44 | 56 |
| Impaired individual resilience | 44 | 56 |
| Disturbance of body image | 43 | 57 |
| Human diginity risk | 42 | 58 |
| Situational low self-esteem | 42 | 58 |
| Hopeless | 41 | 59 |
| Self-care deficit for bathing | 40 | 60 |
| Intolerance risk to activity | 40 | 60 |
| Ineffective breathing pattern | 39 | 61 |
| Peripheral tissue perfusion ineffective | 38 | 62 |
| Cardiac output decreased | 35 | 65 |
| Disturbed energy field | 32 | 68 |
| Self-care deficit to get dressed | 32 | 68 |
| Willingness to improve sleep | 30 | 70 |
| Disuse syndrome risk | 29 | 71 |

The most frequent nursing diagnoses in patients with MS were: impaired physical mobility and activity intolerance; while the least frequent was a risk of disuse syndrome. Due to the number of nursing diagnoses, it was decided to carry out an association between them and their defining characteristics, related factors and risk, which obtained a relative frequency > 50%.

There was no significant statistical association between the impaired physical mobility diagnosis and its components, as this was present in 100% of the sample, preventing the formation of 2x2 contingency tables and the consequent application of statistical association tests. For all other diagnoses was found statistical significance with at least one of its defining characteristics and related factors. However, none of them showed significance with all *of* its defining characteristics.

## DISCUSSION

The outlined profile of nursing diagnoses organizes and promotes care, documents the practice, identifies, understands, describes, explains and/or predicts the human needs of individuals, families and collectivities, who are facing health problems, and determines what aspects of these needs require professional nursing intervention.

Thus, the practice of preparing profiles targeted to neurological disorders is

**Table 2** - Association of nursing diagnoses and their defining characteristics and related factors in patients with multiple sclerosis. Natal, 2014;

| Nurse Diagnoses | Defining Characteristics | f | Statistic p<0,05* | Related factors | f | Statistic p<0,05* |
|---|---|---|---|---|---|---|
| Impaired physical mobility | Limited range of motion | 100 | - | Neuromusculares prejudice | 100 | - |
| | Limited ability to perform fine motor skills | 100 | - | | | |
| | Limited ability to perfomr gross motor skills | 100 | - | | | |
| Activity Intolerance | Discomfort in efforts | 92 | p<0,065 | Generalized weakness | 35 | p<0,034* |
| | Fatigue report | 45 | p<0,04* | | | |
| | Weakness report | 92 | p<0,02** | | | |
| Impaired uninary elimination | Incontinence | 89 | p<0,00* | Sensorimotor damage | 58 | p<0,00** |
| | Frequency | 45 | p<0,08 | | | |
| | Urinary urgency | 67 | p<0,12 | | | |
| Impaired Memory | Inability to recall events | 84 | p<0,00** | Neurological disorders | 44 | p<0,04** |
| | Inability to retain new informations | 40 | p<0,06 | | | |
| | Forgetting experiences | 78 | p<0,134 | | | |
| | Generalized fatigue | 28 | p<0,04* | | | |
| Constipation | Change in bowel pattern | 38 | p<0,06 | Neurological injury | 58 | p<0,02** |
| | Decrease frequency | 81 | p<0,03* | | | |
| Ineffective coping | Difficulty organizing information | 79 | p<0,45 | Inadequate perception of control | 58 | p<0,04** |
| | Fatigue | 28 | p<0,23 | | | |
| | Reporting coping disability | 20 | p<0,02** | | | |
| Chronic Pain | Fatigue | 15 | p<0,00* | Chronic physical disability | 45 | p<0,00** |
| | Verbal report of pain | 75 | p<0,08 | | | |
| Self-care deficit to feeding | Atrophy of the involved muscle group | 69 | p<0,00* | Neuromuscular injury | 69 | p<0,02* |
| | Inability to carry food to the mouth of a container | 69 | p<0,06 | | | |
| | Inability to chew food | 20 | p<0,03 | | | |
| | Inability to swalow food | 69 | p<0,00* | | | |
| Sleep impaired pattern | Functional capacity decreased | 18 | p<0,04* | Interruptions | 35 | p<0,035** |
| | Change in normal sleep pattern | 83 | p<0,08 | | | |
| Sexual Disfunction | Real limitations imposed by the disease | 51 | p<0,03** | Altered body function | 35 | p<0,03* |
| | Real limitations imposed by the therapy | 9 | p<0,28 | | | |
| | Inability to achieve desired satisfaction | 17 | p<0,34 | | | |

** p <0,05 Chi-square test of Pearson; ** p <0,05 Fisher's Exctat test*

incipient, being noticeable in a study with stroke patients (AVC – from Portuguese Acidente Vascular Cerebral), which, from the diagnosis, it was possible to understand the pathophysiology of the disease, as well as identify determinant factors and social and physiological conditions. And thus infer nursing actions of therapeutic nature and prevention, whether at the individual or collective level [11].



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To prepare a diagnostic profile, the nurse should use their knowledge, cognitive and interpersonal skills, and their professional attitudes, to determine the content and quality of the results and their use, drawing a clinical reasoning[5].

In this sense, in this study, there was a predominance of diagnoses that included impaired physical mobility; activity intolerance; impaired urinary excretion; impaired memory; impaired pattern of sleep; self-care deficit for feeding; ineffective coping; constipation; sexual dysfunction and chronic pain.

It is emphasized that MS is a chronic, degenerative disease that progressively destroys the structures that perform the nerve impulse conduction, thus weakening different organ systems, such as the muscular system, which affects motor skill. Impaired physical mobility was associated with a limited range of movement, related to diminished muscular strength. Thus, the muscle loses neuronal activity in the peripheral nervous system, decreasing fine or gross motor skills, resulting in engine damage and intolerance to any physical activity [12].

Thus, it can be inferred that the impaired physical mobility leads the patient with MS to an activity intolerance and self-care deficit for feeding, which are characterized differently. The discomfort in the physical exertions and generalized weakness (adynamia) features an inflexibility of activity, differing of inability of self-care MS patients have to take food from one container to the mouth due to neuromuscular damage.

However, given the evidence, and using the logic of clinical reasoning, the cause that leads to neuromuscular loss of physical mobility, which are inherent motor skills, results in the loss of fine and gross motor coordination, limiting any kind of activity and causing impairment in self-care, thereby restricting the activities of daily living [12].

Thus, it is necessary that nurses run exercises focused on motor rehabilitation and the decompression of prominent bony areas, preventing atrophies, injuries, thus favouring the maintenance of the health condition of patients [13].

Some patients in this study had a urinary tract infection, as well as urinary incontinence, due to sensory motor damage. The cause of the damage is elucidated as a dysfunction in the electrical conduction system in the thoracic region in the truncal perimeter of the central nervous system, affecting muscle activity that causes bladder dysfunction[14]. Thus, the patient has a neurogenic detrusor overactivity (HDN), which is characterized by involuntary contractions during the filling phase of the bladder [14].

Constipation was identified from the generalized fatigue related to neurological damage. It was found that the incidence of severity was not only related to the respective factors, but also to insufficient intake of fiber and fluids, reduced physical activity, and some medications used in the therapy.

In this sense, it is important that nursing staff give special attention to the identification of bladder and bowel dysfunction in people with advanced MS because its recurrence interferes in patient recovery. Thus, nurses should carry out interventions for its management and control, to provide comfort and well-being [15].

The pain identified from fatigue related to chronic physical disability is also a diagnosis commonly observed in patients with MS. The cause is an excess of lactic acid and prostaglandins, causing tissue damage in many organ systems[16]. Among the major systems, it was observed that the sleeping

pattern of the patient was impaired, and this was characterized by decreased functional capacity and related to interruptions.

Equally important, it was noted that nurses should implement interventions in situations that generate reflection, among these are: the administration of drugs in a controlled manner so they do not create dependency; the change of decubitus so that the blood volume circulates evenly and cytokines are cleared by the liver area; massage, and applying cold and thermal compresses. Moreover, it is essential to see and hear the patient to understand verbal and nonverbal levels of pain, as well as accurately registering the nature, type, location and duration of any pain[13].

As for the sleep impaired, actions to promote comfort and prevent insomnia can be offered by nurses, such as providing a quiet environment, reduced lighting, noise reduction and avoiding stressful situations[14].

The patient with MS presents, in the course of the disease, cognitive damage that impairs the speed of processing information and memory, affecting the translation skills of the information. The impaired memory diagnosis was characterized by the inability to recall events related to neurological disorders, as patients with MS should be encouraged to develop their cognitive ability through the use of photographs, drawing and painting[17].

Diagnoses of ineffective coping and sexual dysfunction were common in patients with MS. Thus, emotional changes such as anxiety, sadness, depression, emotional lability and euphoria must be observed. These changes impair their quality of life, hindering the performance of daily activities[18].

The way MS patients react emotionally to changes caused by the disease also changes the way the individual perceives himself by modifying personal identity, and how they understand and interact with the physical and social environment. It is observed that psychiatric disorders are secondary to demyelinating lesions in the temporal lobe, an area especially associated with psychiatric change, but not yet fully known pathophysiology [17].

Thus, nurses need to be aware of changes in the mood of patients because there is a relationship between this symptom and a probability to commit suicide. Thus, care must be imminent and constant, taking into account the social and psychological consequences of the disease as an obstacle to the development of new care plans needed during treatment[13].

In relation to sexual dysfunction, the cause is still poorly understood, but it is known that this process of neuronal destruction affects the limbic system, decreasing the production of sex hormones. It was noticed that some patients had common characteristics, such as actual limitations imposed by the disease and therapy. Not only does the disease lead to sexual dysfunction, but also the medical process, which causes changes in the hormone production of the patient, causing in men a reduction of testosterone and in women estrogen and progesterone [19-20].

## CONCLUSION

Were identified 30 nursing diagnoses in MS patients hospitalized in a neurological unit, but only 10 reached the agreement index> 0.80, which are: impaired physical mobility; activity intolerance, impaired urinary excretion; impaired memory; impaired pattern of sleep; self-care deficit for feeding; ineffective coping; constipation; sexual dysfunction and chronic pain.


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Limitations of this study consist of the fact that clinical assessment is a subjective process; before that, the diagnostic process is subject to uncertainties, bringing implications for expected results and specific nursing interventions. Another limitation is the fact that this is the DE profile in MS patients from a neurology sector of a single institution, whose sample was selected by convenience. Thus, these results, although important for practice, cannot be generalized, since, depending on the socioeconomic characteristics, and regional health services, this profile may vary. However, the study could form a basis for the teaching of nursing diagnoses for the sector nurses in question and for undergraduate students who participated in the study.

Given these considerations, it is recommended that further studies are carried out with a view to the use of the nursing process in patients with MS. This is because the implementation of a systematic nursing care favoured a critical and scientific practice, certainly leading to professional recognition with the clientele, and they shall think about practice in teaching, research and extension.

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