

# NURSING CARE DEPENDENCY SCALE FOR PATIENTS AFFECTED BY CEREBROVASCULAR ACCIDENT

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**ABSTRACT:** The present study aimed to characterize patients who had a stroke regarding socio-demographic aspects and classify these individuals according to their degree of dependence on nursing care. Qualitative cross-sectional study with 100 patients conducted in a public hospital, in Fortaleza, state of Ceará. Data were collected from July to September 2012 through an instrument containing socio-demographic information and the application of a Patient Rating Scale. Categorical data were analyzed using absolute and relative distribution frequency. It was found that 58% of the patients required intermediate care; 22%, semi-intensive care; 18%, minimal care and 2%, intensive care. The use of a patient's rating process favors the planning of nursing care, joining efforts to provide quality care to this clientele.

**DESCRIPTORS:** Cerebrovascular accident; Nursing; Assessment in nursing.

## CLASSIFICAÇÃO DA DEPENDÊNCIA DE CUIDADOS DE ENFERMAGEM DOS PACIENTES ACOMETIDOS POR ACIDENTE VASCULAR ENCEFÁLICO

**RESUMO:** Objetivou-se caracterizar os pacientes acometidos por Acidente Vascular Encefálico quanto aos aspectos sociodemográficos e classificar esses indivíduos segundo o grau de dependência dos cuidados de enfermagem. Estudo transversal, com abordagem quantitativa, desenvolvido com 100 pacientes, em um hospital público, situado em Fortaleza, estado do Ceará. Os dados foram coletados no período de julho a setembro de 2012, por meio de um instrumento contendo informações referentes aos dados sociodemográficos e aplicação da Escala de Classificação de Pacientes. Os dados categóricos foram analisados por meio de distribuição de frequência absoluta e relativa. Verificou-se que 58% dos pacientes exigiam cuidados intermediários; 22%, cuidados semi-intensivos; 18%, cuidados mínimos e 2%, intensivos. O uso do processo de categorização do paciente torna favorável o planejamento das ações de cuidados de enfermagem para coadunar esforços, no intuito de oferecer assistência de qualidade a esta clientela.

**DESCRIPTORIOS:** Acidente vascular cerebral; Enfermagem; Avaliação em enfermagem.

## CLASIFICACIÓN DE LA DEPENDENCIA DE CUIDADOS DE ENFERMERÍA DE LOS PACIENTES ACOMETIDOS POR ACCIDENTE VASCULAR ENCEFÁLICO

**RESUMEN:** Fue objetivo del estudio caracterizar los pacientes acometidos por Accidente Vascular Encefálico cuanto a los aspectos sociodemográficos y clasificar esos individuos según el grado de dependencia de los cuidados de enfermería. Estudio transversal, con abordaje cuantitativo, desarrollado con 100 pacientes, en un hospital público, ubicado en Fortaleza, estado de Ceará. Los datos fueron obtenidos en el período de julio a septiembre de 2012, por medio de un instrumento con informaciones de los datos sociodemográficos y aplicación de la Escala de Clasificación de Pacientes. Los datos categóricos fueron analizados por medio de distribución de frecuencia absoluta y relativa. Se verificó que 58% de los pacientes exigían cuidados intermediarios; 22%, cuidados semintensivos; 18%, cuidados mínimos y 2%, intensivos. El uso del proceso de categorización del paciente vuelve el planeamiento de las acciones de cuidados de enfermería favorable para coadunar esfuerzos, a fin de ofrecer asistencia de calidad a esta clientela.

**DESCRIPTORIOS:** Accidente vascular cerebral; Enfermería; Evaluación en enfermería.

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## INTRODUCTION

Cerebrovascular Accident (CVA) or stroke is a disorder caused by sudden loss of brain function due to total or partial disruption or reduction of blood supply to the brain<sup>(1)</sup>. It is a set of focal or global neurological symptoms that last more than 24 hours, with abrupt onset, characterized by high levels of disability and functional dependence of the patient, associated to the individual's deterioration of physical, cognitive, emotional and social skills<sup>(2)</sup>.

CVA is the second leading cause of death worldwide, predominantly in middle-aged and older adults<sup>(3)</sup>. In Brazil, the change in the morbidity and mortality profile by chronic diseases is evident: in 2009, there were 160,621 hospitalizations by cerebrovascular disorders. The mortality rate was 51.8 for each group of 100,000 inhabitants<sup>(4)</sup>.

A study showed that approximately 20% of the patients who had a stroke survive only one month after the onset of the disease, other 50% survive longer, but with significant and permanent disabilities, requiring care. The remaining 30% have neurological deficits and acquire a permanent degree of dependence<sup>(5)</sup>.

Given the different levels of disabilities, nursing care to patients who had a stroke should consider the needs of these patients. Therefore, the development of Patient Rating Systems (PRS) arose from the need to improve human resource planning in health institutions.

The PRS is a method that allows the delivery of individualized care, with the purpose of improving the quality of assistance, insofar as it allows the identification of the type of care needed by the patients, funds the reallocation of personnel and materials, redirects care dynamics and determines the costs of nursing care<sup>(6)</sup>.

In 1996, Perroca<sup>(7)</sup> developed a tool designed to guide the rating of patients by type of care, based on individualized nursing care needs. The tool involves the assessment of 13 critical indicators of care that comprise biological and psychosocial aspects of care, as follows: Mental state and Level of consciousness; Oxygenation; Vital signs; Nutrition and Hydration; Motility; Locomotion; Body care; Eliminations; Therapy; Health education; Behavior; Communication and Integrity of the skin and mucosa.

Several studies that used this rating system concern the investigation of the degree of

dependency on nursing care in inpatient units<sup>(6-8)</sup>. However, there are few studies in Brazil on the degree of dependency or severity of patients who had a stroke measured by the referred scale.

It is essential for nurses to incorporate updated scientific knowledge to their clinical practice. The PRS in nursing concerns the need for all nurses to commit themselves to this process, in order to be able to introduce it in their professional practice, in general and specialized sectors, which brings benefits for patients and the professionals themselves. Therefore, the aim is to contribute and join efforts for the improvement of the nursing care practice and encourage new studies on this topic.

In view of the aforementioned, the present study was proposed aiming to characterize patients who had a stroke regarding their socio-demographic aspects and classify these individuals regarding the degree of dependency on nursing care.

## METHOD

Cross-sectional, observational, descriptive study with quantitative approach. The research was conducted in a hospital connected with the Unified Health System (SUS), located in Fortaleza, state of Ceará, Brazil. This institution was selected because it counts on a unit specialized in care for stroke patients, being a reference in the state.

The population was composed by 100 patients admitted with diagnosis of CVA. The inclusion criteria were: a) be over 18 years of age; b) diagnosed with stroke; c) willingness to participate as a subject in the research by signing the Informed Consent document. Foram excluídos do estudo os pacientes com diagnóstico médico não estabelecido. Convenience sampling was used.

Data were collected from July to September 2012. The tools used were 1) a structured interview form with questions on socio-demographic variables and, 2) a rating scale designed and validated by Perroca<sup>(7)</sup> that classifies the degree of patient dependency on nursing care. The referred instrument had its contents updated and structure, allowing more accurate measurement of complex care needs of the patients and the nursing resources employed<sup>(9)</sup>.

The scale uses 13 critical indicators of care, scored from one to five, representing the increasing intensity of complexity of care, so

that value 1 corresponds to the lowest level of complexity of care and value 5, the maximum level of complexity of care. Thus, the value obtained individually for each indicator is added, and the total value is obtained by comparing it with the proposed score intervals, which results in a class or category of care to which this patient belongs: minimum (13 to 26 points), intermediate (27 to 39 points), semi-intensive (40 to 52 points) and intensive (53 to 65 points).

To perform the analysis, the data were transcribed and tabulated in a database of Excel Microsoft XP, version 2010. Categorical data were presented with absolute and relative frequencies, in tables and figures, and discussed and compared with the relevant literature.

The study was approved by the Research Ethics Committee of Universidade de Fortaleza (UNIFOR) under no 03110303/11, in accordance with the provisions of Resolution no 196/96 of the National Health Council<sup>(10)</sup>.

## RESULTS

For sample characterization the following socio-demographic aspects were investigated: gender, age range, place of birth, marital status, religion, family income, occupation, education (in years). These data are shown in Table 1.

In the study sample, both genders were equally represented: 50 (50%) women and 50 (50%) men; most subjects were over 60 years of age: 59 (59%); born in the inland of the state: 75 (75%); and living with a partner: 60 (60%). Regarding religion, 78 (78%) were Catholics, followed by 17 (17%) evangelicals. Regarding education, most subjects had completed 1 to 3 years of study: 31 (31%) participants, followed by 04 to 07 years of education: 30 (30%).

Regarding family income, 52 (52%) the participants earned the minimum wage during the study period. Regarding occupation, most subjects were retired: 51 (51%). As for the type of stroke, almost all the subjects had ischemic cerebrovascular disease (CVAi) (Figure 1).

Figure 2 shows the distribution of stroke patients regarding the degree of dependency, according to the rating system. It can be seen that 58 (58%) of the patients were rated as in need of intermediate care.

Table 1 – Distribution of stroke patients according to socio-demographic variables. Fortaleza, Ceará, Brazil, 2012

Variables	n	%
<b>Gender</b>		
Female	50	50
Male	50	50
<b>Age range</b>		
> 60 years	59	59
< 60 years	41	41
<b>Place of birth</b>		
Capital	18	18
Inland	75	75
Others	7	7
<b>Marital status</b>		
Living with a partner	60	60
Living without a partner	40	40
<b>Religion</b>		
Catholic	78	78
Evangelical	17	17
Jehovah's witness	1	1
No religion	4	4
<b>Family income</b>		
< 01 minimum wage	6	6
01 minimum wage	52	52
02 to 04 minimum wages	36	36
> 04 minimum wages	6	6
<b>Occupation</b>		
Retired	51	51
Paid activity	49	49
<b>Education (in years)</b>		
01 to 03 years	31	31
04 to 07 years	30	30
08 to 11 years	22	22
12 or more years	17	17

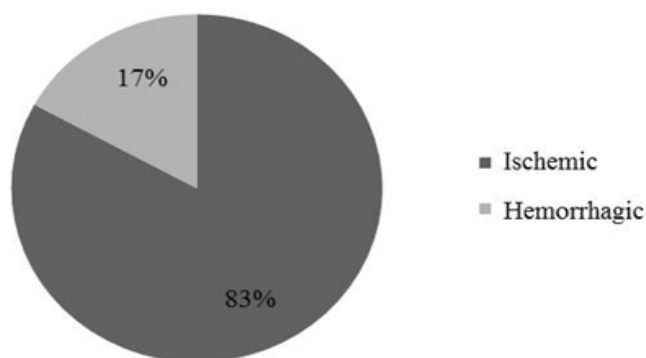


Figure 1– Distribution of patients according to the type of stroke. Fortaleza, Ceará, Brazil, 2012

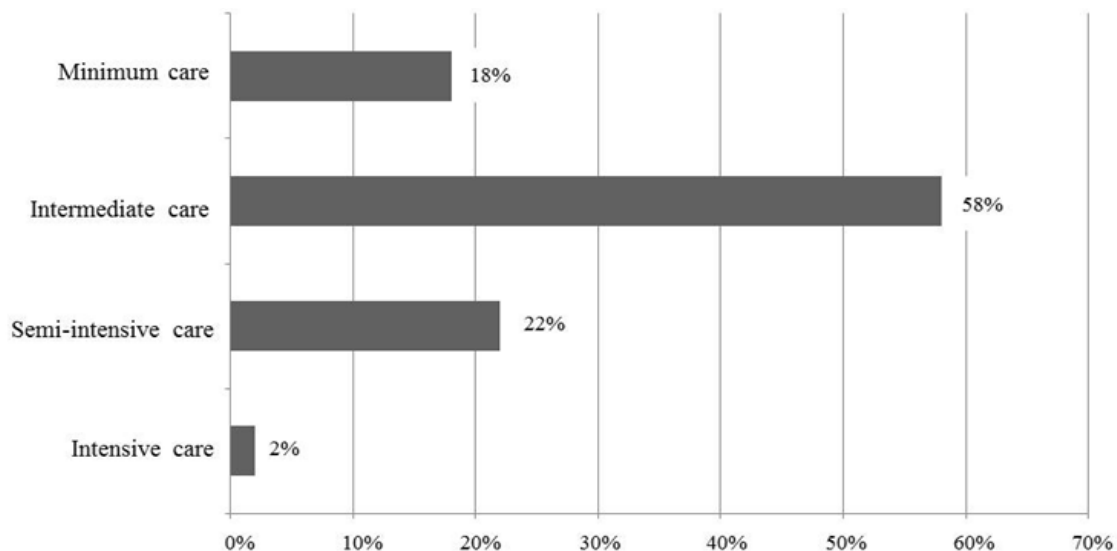


Figure 2 – Distribution of the rating of nursing care to stroke patients. Fortaleza, Ceará, Brazil, 2012

## DISCUSSION

This study characterized the profile of stroke patients and their rating according to the degree of dependency on nursing care proposed. Both genders were equally represented. The findings of other studies with this clientele demonstrate that stroke is not gender-related<sup>(11-13)</sup>.

A study<sup>(11)</sup> with 180 patients diagnosed with stroke in Fortaleza, state of Ceará, reported that men (48.9%) and women (51.1%) were equally affected, without statistically significant difference between them ( $p < 0.134$ ). Another study<sup>(12)</sup> with 47 patients with CVA in Minas Gerais found a slight predominance of CVA among the male population (54.7%). These data are consistent with a study conducted in Italy<sup>(13)</sup> with 362 individuals, which found a slight prevalence of the disease among males (57.8%).

The data obtained showed a predominance of patients aged over 60 years. The association between older age groups and the occurrence of cerebrovascular disorders is known and justified, particularly by the biological predisposition to these disorders inherent to aging, regardless of other risk factors.

Comparison of our data with another study<sup>(14)</sup>, to investigate hospital admissions of adults due to ischemic stroke that occurred in Brazil, from 2006 to 2007, showed that, in 16,879 hospitalizations, the average age of the subjects was 64.7 years (SD=15.7 years).

Age is the main non-modifiable risk factor for stroke, which reinforces the need for urgent action by primary care facilities to prevent and

control these events<sup>(14-15)</sup>. Strategies related to health education and the tracking of diseases that may cause stroke are essential to reduce the vulnerabilities of the general population.

The results of this study indicate that most participants come from the inland of the state. These subjects could have a chronic disease such as hypertension, diabetes, heart diseases or unhealthy lifestyle habits like smoking and drinking, which are risk factors for cerebrovascular diseases.

Most patients lived with a partner. Depending on the severity of neurological deficit, stroke causes significant neurological deficiencies and residual disabilities, both in the motor and cognitive. Because of the loss of autonomy, patients need the support from others to perform basic everyday activities<sup>(5)</sup>. Therefore, it can be inferred that the marital status of the participants is a positive factor, since patients experience discouragement and uncertainty about the future and lose their independence and ability to undertake daily activities, and need monitoring.

A study<sup>(16)</sup> on the profile of caregivers of stroke patients showed that, of a total of 83 patients, 70% were cared by the spouse. These data corroborate the findings of a descriptive study<sup>(17)</sup>, according to which, 78.6% of a total of 242 caregivers were women and wives. Data from a survey<sup>(18)</sup> conducted in Fortaleza, state of Ceará, with 52 family caregivers reported that the children (63.5%) were the main caregivers. Regardless of the family relationships, because of the disabilities caused by the disease, the patients need a partner or a caregiver to help them in their basic activities.

Most respondents were Catholics. Religiosity has been found to have a positive impact on physical health, and can be considered a possible protective factor in the prevention of several disorders. Studies that attempt to investigate the relationship between reduced mortality rate and religious practices have emphasized the possible encouragement of these practices to healthy life habits, social support, lower rates of stress and depression<sup>(19)</sup>. So, religion can be considered a sort of escape valve for these individuals in their attempt to overcome a difficult situation.

The family income of most participants was one to four minimum wages. This finding causes concern since it indicates less availability of resources for quality food, education, health and general resources<sup>(20)</sup>. Thus, the income (socioeconomic class) of the individual is a risk factor associated to the onset of the disease and to regular/bad health perception. This data is consistent with a cross-sectional study<sup>(21)</sup>, performed in Maringá, state of Paraná, with 1,232 individuals who had a stroke. The authors found that most respondents belonged to socioeconomic classes D (two to four minimum wages) and C (four to ten minimum wages). For this individuals, health self-perception was negative compared to classes A and B ( $p < 0.019$ ).

The data obtained showed that most respondents had a low educational level (up to three years of schooling). Poor education may contribute to the onset of the disease, as this fact, associated to economic and cultural factors, may reduce awareness of the importance of health care needs throughout life, treatment and maintenance of a healthy lifestyle. A descriptive study<sup>(22)</sup> conducted in Fortaleza, state of Ceará, indicated that a low educational level was strongly associated to a higher prevalence of chronic diseases, which may predispose to CVA.

The number of retired individuals and those who performed some paid activity was equivalent. The sequelae derived from stroke have economic, social and family impact since the functional capacity of most patients is impaired. Thus, this illness is responsible for a significant percentage of disability pensions<sup>(23)</sup>.

Most subjects of our sample had ischemic cerebrovascular disease (CVAi), accounting for 83% of the cases. This is the most common type of stroke characterized by interruption in blood supply to the brain caused by the formation of a clot of by interruption of brain's electrical activity<sup>(3-5)</sup>. Our data are similar to the findings of

a study with 74 stroke patients, where 78.6% had AVEi<sup>(24)</sup>. An instrumental ethnographic research with a population of 10 elderly with a first stroke episode showed that 90% of them had the ischemic type<sup>(25)</sup>.

The patients in this study were classified for degree of dependency as follows: intermediate care (58%) and semi-intensive care (22%). The identification of the care needed by patients can assist in planning and implementing care programs that meet the needs of this clientele, as well as in the appropriate allocation and training of the nursing staff<sup>(6)</sup>.

In practice, a tool that allows nurses to classify patients according to their degree of dependency on nursing care into minimum, intermediate, semi-intensive and intensive provides a staff that is suitable for the development of effective and safe care, in both qualitative and quantitative terms<sup>(8)</sup>. Most subjects in this study were classified as requiring intermediate care: stable patients, though with partial dependence on nursing care<sup>(9)</sup>. The indicators that most contributed to the increase in the degree of dependence on nursing care were: locomotion, body care, therapy and eliminations.

The most common sequelae of stroke included change in physical mobility, responsible for the increased risk of falls, dysphagia, aphasia, cognitive and perceptual disorders, depression and other emotional and behavioral disturbances<sup>(12-13)</sup>. The disease causes different levels of disability, considerably increasing the degree of dependence on nursing care.

The findings of this study corroborate those of national relevant studies that address physical disabilities resulting from stroke<sup>(1,25)</sup>. A retrospective study<sup>(25)</sup> conducted in a neurological rehabilitation ward in Brasília, Distrito Federal, found that, of 72 patients who had brain damage caused by stroke, 69% had hemiparesis; 18%, hemiplegia; 10%, tetraplegia; and 1%, other types of motor impairment. Wheelchair was the most common form of aid used by 50% of the patients. The same study also identified memory and communication disorders in 56% and 57% of the individuals who had a stroke. As for intestinal disorders, the authors reported the occurrence of fecal incontinence and chronic constipation in 18% and 29% of the study population.

Intestinal dysfunction is a common condition following stroke and is associated to neurological disorders that lead to disorders of the rectum

and bladder. This dysfunction is also observed in hemiplegic patients and is related to dependence, modification of diet and conditions of defecation<sup>(2)</sup>.

Hygienic care involves bathing and oral hygiene. Oral hygiene is a practice used to clean the mouth cavity, especially the teeth and tongue, and includes tooth brushing, tongue cleaning, flossing, and care of denture and mobile bridges<sup>(12)</sup>. Basic care for personal hygiene are essential and, therefore, should be part of the nurses' activities.

The study also highlighted the need for greater care with respect to the therapy of the patients. The planning and implementation of self-care and adherence to drug therapy is a challenge to individuals who had a stroke because of their cognitive, memory and communication impairment. Thus, support from family members is essential in this context<sup>(1)</sup>.

A significant percentage of the subjects in this study required semi-intensive care, defined as care intended for recoverable or chronic patients, clinically stable, but totally dependent on nursing actions<sup>(9)</sup>. This finding is a matter of concern because neurological units receive patients who may have instability of vital signs, requiring permanent and specialized nursing and medical assistance.

So, why would these patients be kept in neurological units? Due to lack of beds at the ICU or due to the lack of systematic assessment of the complexity of patients, of their care profile?.

An integrative review<sup>(26)</sup> that attempted to identify nursing interventions to patients hospitalized due to stroke reported the need for care and management interventions. The authors mentioned the following care interventions: motor and functional rehabilitation; administration of medication; monitoring of physiological functions; planning for patient discharge; emotional care; care to prevent complications and trauma; assessment for the use of thrombolytic therapy; neurological assessment; urinary catheterization; care related to self-care activities; correct positioning of the patient in the bed; aspiration prevention care, among others.

Regarding management interventions, the authors mentioned coordination of care, organization, assessment and coordination of the care of the patient at home and transfer of the patient to other areas of the hospital. In the multidisciplinary team, nurses should assess the needs of patients and their family

members, provide the necessary resources for the implementation of patient care and facilitate transitions in care, seeking results that indicate the delivery of quality care<sup>(2)</sup>.

The PRS is an important tool for continuous monitoring nursing staff workload, through the identification of the complexity of patient care<sup>(7)</sup>. A study<sup>(27)</sup> aimed to assess the distribution of nursing personnel in an inpatient unit showed a lower percentage of nursing professional/bed (0.94). The authors also obtained the highest percentage of patients in the categories of semi-intensive (12.3%) and intensive (2%) care and the lowest number of working hours of nurses (0.5) in relation to nursing care. These figures show that nursing staff forecast and distribution done empirically, based only on clinical experience, may generate calculations that are inappropriate to the organizational reality, burdening the nursing staff.

## CONCLUSION

The present study provided knowledge on the profile of inpatients who had a stroke, and through the application of a patient rating scale, these subjects were characterized according to their degree of dependence on nursing care.

There was no significant difference in the number of individuals who had a stroke in this study, regarding gender. Most subjects were over 60 years of age, lived in the inland of the state with a partner, were Catholics, their family income ranged from one to four minimum wages, had low educational level and were retired. Regarding the type of stroke, most participants had the ischemic type. Concerning the degree of dependence on nursing care, assessed with the use of a rating scale designed by Perroca, most patients required intermediate and semi-intensive nursing care.

Therefore, the importance of a use of an instrument to rate patients according to their needs of nursing care has been clearly demonstrated, as well as the need for a management tool to help planning and distributing the nursing staff in hospitals.

Access to updated scientific knowledge is of key importance for nurses in their clinical practice. The use of the PRS favors the planning of nursing care, joining efforts to provide quality care to this clientele.

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