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ORIGINAL ARTICLE

STROKE: RELATION OF PERCEIVED STRESS WITH SOCIODEMOGRAPHIC AND CLINICAL VARIABLES*

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ABSTRACT

Objective: To analyze the relation of the perceived stress with sociodemographic and clinical variables of people with sequelae of stroke.

Method: A cross-sectional study, conducted with 160 individuals with stroke-related sequelae, registered in Family Health Units in the city of João Pessoa-PB, Brazil. The information was collected using a semi-structured instrument to obtain sociodemographic and clinical data, and the Perceived Stress Scale. The analysis was performed using the Mann-Whitney and Kruskal-Wallis tests.

Results: The perceived stress was classified as moderate (22.05; ±10.92). A significant association was observed between stress and the muscle weakness (p=0.041), mood disorder (p=0.032), presence of a caregiver (p=0.017) variables.

Conclusion: There was a significant association of high levels of stress with the sequelae of muscle weakness and mood disorders, and care dependence of third parties to carry out daily living activities.

DESCRIPTORS: Nursing; Stroke; Psychological Stress; Rehabilitation; Family Health Strategy.

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ARTIGO ORIGINAL / ARTÍCULO ORIGINAL

ACIDENTE VASCULAR ENCEFÁLICO: RELAÇÃO DO ESTRESSE PERCEBIDO COM VARIÁVEIS SOCIODEMOGRÁFICAS E CLÍNICAS*

RESUMO
Objetivo: analisar a relação entre o estresse percebido com as variáveis sociodemográficas e clínicas de pessoas com sequelas de acidente vascular encefálico.
Método: estudo transversal, realizado em 160 pessoas com sequelas do acidente vascular encefálico, cadastradas em Unidades de Saúde da Família do município de João Pessoa-PB, Brasil. As informações foram coletadas por instrumento semiestruturado para obtenção dos dados sociodemográficos e clínicos, e a Escala de Estresse Percebido. A análise foi realizada por meio dos testes de Mann-Whitney e Kruskal-Wallis.
Resultados: o estresse percebido foi classificado como moderado (22,05;±10,92). Observou-se associação significativa entre o estresse com as variáveis fraqueza muscular (p=0,041), distúrbio de humor (p=0,032) e a presença de cuidador (p=0,017).
Conclusão: evidenciou-se associação significativas dos níveis elevados de estresse com as sequelas de fraqueza muscular e de distúrbio do humor, e dependência de cuidados de terceiros para a realização das atividades de vida diária.

DESCRITORES: Enfermagem; Acidente Vascular Cerebral; Estresse Psicológico; Reabilitação; Estratégia Saúde da Família.

ACCIDENTE CEREBROVASCULAR: RELACIÓN DEL ESTRÉS PERCIBIDO CON VARIABLES SOCIODEMOGRÁFICAS Y CLÍNICAS

RESUMEN:
Objetivo: analizar la relación del estrés percibido con las variables sociodemográficas y clínicas de personas con secuelas de un accidente cerebrovascular.
Método: estudio transversal realizado con 160 personas que presentan secuelas de un accidente cerebrovascular, registradas en Unidades de Salud de la Familia del municipio de João Pessoa-PB, Brasil. La diversa información se recopiló por medio de un instrumento semiestructurado a fin de obtener los datos sociodemográficos y clínicos, y a través de la Escala de Estrés Percibido. El análisis se realizó por medio de las pruebas de Mann-Whitney y de Kruskal-Wallis.
Resultados: el estrés percibido se clasificó como moderado (22,05; ±10,92). Se observó una asociación significativa entre el estrés y las variables de debilidad muscular (p=0,041), cambios de humor (p=0,032) y presencia de un cuidador (p=0,017).
Conclusión: se hizo evidente una significativa asociación entre los niveles elevados de estrés y las secuelas de debilidad muscular y cambios de humor, además de la dependencia de cuidados a cargo de terceras personas para realizar las actividades de la vida diaria.

DESCRIPTORES: Enfermería; Accidente Cerebrovascular; Estrés Psicológico; Rehabilitación; Estrategia Salud de la Familia.

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INTRODUCTION

Cerebrovascular Diseases (CVDs) represent one of the main causes of morbidity and mortality in the world[1]. Among the CVDs, the most prevalent is the Stroke (Encephalic Vascular Accident, EVA)[2], which is characterized as a sudden developmental neurological syndrome resulting from a disturbance in brain circulation, persisting for more than 24 hours[1,3].

Epidemiological data demonstrate a high occurrence of EVA worldwide[2]; it is also the first most common cause of death in Latin America, with the highest mortality rate in Brazil[4]. At the national level, more than 936,000 cases of hospitalizations due to EVA between 2014 and 2018 were identified[5], with fatality rates of 18.5% at 30 days, and of 30.9% at 12 months[6].

Among EVA survivors, about 90% had some sequelae resulting from this event[7], causing several changes in their lives, such as loss of social roles, difficulty in self-care, dependencies, and harms in relationships, in addition to emotional repercussions[8,9], which may require coping mechanisms superior to what they have available to adapt to the new reality, resulting in stress[10].

Stress is configured as an individualized process, as a result of the relationship between the person and the pressures derived from environmental/psychological reasons or from biological maladjustments[11]. In this interaction, it is not the quality of the situation that makes it a stressor, but the way it is perceived and judged by the individual[10]. Furthermore, the stress resulting from the repercussions of the EVA can cause wear, compromise the rehabilitation process, and negatively impact the general well-being of this population.

In Brazil, the measurement of perceived stress and associated factors in people with chronic morbidities, such as diabetes mellitus, systemic arterial hypertension, and chronic kidney disease, have been the focus of several studies in the area of health and nursing[12-15]. However, research studies that evaluated these aspects in EVA survivors are scarce in the national and international scientific production. The publications that link stress and EVA are restricted to the survivor's physiological stress or to the caregiver's adaptation and burden[16].

Assessing perceived stress and the related factors in people affected by EVA can assist nurses and other health professionals in the development of a care plan, which favors the adaptive process in the face of the adversities caused by the EVA and minimizes the impact of this morbidity on the lives of the survivors. In this perspective, the present study aims to analyze the relationship between perceived stress, and the sociodemographic and clinical variables of people with EVA sequelae.

METHOD

A cross-sectional, exploratory and descriptive study with a quantitative approach, conducted with people who had sequelae of EVA, registered in Family Health Units (FHUs), in the city of João Pessoa-PB, Brazil, between July and November 2018.

The sample was calculated from the total number of hospitalizations in the six months prior to the collection, in the hospital network of the Unified Health System (*Sistema Único de Saúde*, SUS) of that city, which corresponded to 231 hospitalizations, according to information from the IT Department(5). The sample size was defined using the calculation for finite population with known proportions, based on a 95% confidence interval (α=0.05), an estimated prevalence of 50% (p=0.50), and a margin of error 5% (Error=0.05), corresponding to a minimum sample of 146 individuals. 10% was added for possible losses

or refusals, totaling 160 participants.

The following inclusion criteria were defined: people cared for in one of the Family Health Teams (FHTs), selected by draw, with EVA involvement with a time equal to or greater than three months, who had at least one type of sequel from the EVA, and aged 18 years old or more. The exclusion criteria were defined as follows: neurological comorbidity, aphasia, significant hearing loss, which could prevent questionnaire compression, and cognitive deficits assessed by the Mini Mental State Examination (MMSE)[17].

The municipality of João Pessoa-PB has 200 FHTs. The choice of the FHTs to attract the participants was made by means of a draw that selected eight teams from the five Sanitary Districts of that municipality, totaling 40 FHTs drawn. For selecting the participants, nurses from the selected teams were asked to list all the people with sequelae from the involvement of a recorded EVA and, based on this list, a draw was made of four participants per team. Subsequently, the Community Health Agent (CHA) in the area had a previous contact with those selected to invite them to participate in the research and schedule the best time to apply the instruments. It is noteworthy that it was decided to conduct the interview at the participant's own home, due to the fact that the majority had physical limitations, making mobility difficult.

To obtain the sociodemographic and clinical data of the study participants, a semi-structured instrument was used, constructed based on a wide investigation of the literature. It was submitted to the prior evaluation of five doctoral judges from a Federal University to validate the relevance and pertinence of the questions regarding the investigated theme. A copy of the instrument was delivered to each judge to assess and judge each item as "relevant" or "not relevant". At the end of the judges' analysis, the instrument was restructured according to the listed suggestions.

The stress experienced after an EVA was assessed using the Perceived Stress Scale version with 10 items (PSS-10). Each item consists of scored statements according to the frequency with which they occur, receiving a score ranging from 0 to 4. The questions with a positive connotation (4, 5, 7, and 8) have their scores reversely added, as follows: 0=4, 1=3, 2=2, 3=1, 4=0. Negative issues must be added up directly. The total scores can range from 0 to 40, with the higher ones suggesting higher stress levels[18].

As the scale does not have a specific classification for the stress levels, in this study the minimum and maximum values shown by the participants (8 and 35 points, respectively) were used and distributed in the form of quartiles. In this type of calculation, the values are divided into four equal parts of 25%, where quartile 1 (Q1 – 18 points) corresponds to the 25% lowest values, quartile 2 (Q2 – 21 points) delimits 50% of values, and quartile 3 (Q3 – 25 points) covers 25% higher values. Thus, the means were classified as low (Q1), moderate (Q2), and high (Q3).

The data were stored in an electronic spreadsheet, structured in the Microsoft Excel program with double typing, aiming to guarantee reliability in the compilation. Later on, they were imported into the Statistical Package for the Social Sciences (SPSS) software, version 22.0, and analyzed using descriptive and exploratory statistics.

To verify the normality assumption, the Kolmogorov-Smirnov test was used and it was found that the perceived stress variable had a non-normal distribution. In order to identify the relationship between perceived stress and sociodemographic and clinical variables, the Mann-Whitney and Kruskal-Wallis tests were used, according to their assumptions. The association was considered statistically significant when $p \leq 0.05$.

The research was developed according to the ethical aspects that involve human beings, recommended by Resolution No. 466/2012 of the National Health Council. There was approval by the Research Ethics Committee of the Health Sciences Center of the Federal University of Paraíba, according to Opinion No. 2,994,882. The participants were informed on the research objectives, as well as on the possible risks, the benefits, and confidentiality, and signed the Free Informed Consent Form.

RESULTS

In the distribution of the sociodemographic data of the 160 participants, it was observed that 82 (51.3%) were male, 134 (83.8%) were aged 60 years old or over, 97 (60.6%) were married, 77 (48.1%) had one to four years of study, and 122 (76.3%) had a family income of one to three minimum wages.

Regarding perceived stress, a moderate mean was identified: 22.05 (SD=±10.92). There was no statistical significance in the association with sociodemographic variables (Table 1).

Table 1 - Relation between perceived stress and the sociodemographic variables of people with EVA sequelae. João Pessoa, PB, Brazil, 2018

Variables	Perceived Stress		
	Mean	SD*	p-value
Gender			0.811
Male	21.69	4.75	
Female	21.48	5.70	
Age group			0.128
<60 years old	22.96	4.87	
≥60 years old	21.29	5.27	
Marital status			0.745
Married	21.64	5.90	
Single	21.64	5.90	
Divorced	21.61	4.55	
Widow/Widower	20.92	5.01	
Schooling (years of study)			0.144
Illiterate	20.40	4.93	
1-4	20.80	5.45	
5-8	23.36	4.51	
9-12	21.57	4.70	
≥13	23.75	6.49	
Family income (minimum wages)**			0.087
<1	24.80	4.81	
1 to 3	22.09	5.19	
4 to 5	18.52	5.66	
≥5	21.25	2.98	

*SD – Standard Deviation **Minimum wage at the time: R$954.00. Source: Research data, 2018.

Regarding the characteristics of the EVA, 101 (63.1%) participants suffered the last EVA more than a year ago, 112 (70.0%) EVAs were of the ischemic type, and 106 (66.3%) participants suffered only one episode. Regarding the most frequent sequelae, 106 (66.3%) individuals presented motor sequelae, and 76 (47.5%) patients reported muscle weakness while 68 (42.5%), involvement by both sequelae. Regarding rehabilitation, 73 (46.9%) people underwent or are undergoing rehabilitation, with physical therapy prevailing, 73 (45.6%).

Statistical significance was observed between stress and muscle weakness (p=0.041) and mood disorder (p=0.032). It was evident that the people who referred to these sequelae showed higher levels of stress (Table 2).

Table 2 - Relation between perceived stress and the characteristics of the EVA. João Pessoa, PB, Brazil, 2018 (continues)

Variables	Perceived Stress		
	Mean	SD*	p-value
Time elapsed since the last EVA (months)			
3 – 6	23.00	3.67	0.134
7 – 1 year	21.94	6.19	
> 1 year	20.96	5.46	
Type of the last EVA			
Does not know	21.69	5.44	0.917
Hemorrhagic	21.42	5.03	
Ischemic	21.23	4.35	
EVA episodes			
1	21.61	5.22	0.729
2-3	21.20	5.22	
≥4	21.45	5.78	
Type of sequelae			
Motor alteration			
Yes	22.14	5.43	0.085
No	20.60	4.72	
Decreased muscle strength			
Yes	22.51	4.96	0.041
No	20.75	5.34	
Sensitivity deficit			
Yes	22.53	5.34	0.252
No	21.33	5.18	
Mood disorder			
Yes	23.34	4.81	0.032
No	21.10	5.25	

Visual impairment			
Yes	22.38	4.97	0.342
No	21.37	5.29	
Dysphagia			
Yes	22.54	5.25	0.332
No	21.40	5.22	
Facial paralysis			
No	21.60	5.22	0.958
Yes	21.52	5.42	
Did/Does rehabilitation			
Yes	22.07	5.13	0.233
No	21.04	5.30	

*SD – Standard Deviation. Source: Research data, 2018

With regard to the presence of a caregiver, 100 (62.5%) participants had help from third parties, of which 91 (91.0%) were of the informal caregiver type. Regarding the number, 40 (40.0%) individuals reported receiving help from only one caregiver, and 44 (44.0%) had their spouse as their primary caregiver. Perceived stress was associated with the presence of a caregiver (p=0.017) (Table 3).

Table 3 - Relation between perceived stress and the variables related to the caregiver of people with EVA sequelae. João Pessoa, PB, Brazil, 2018 (continues)

Variables	**Perceived Stress**		
	Mean	**SD***	**p-value**
Presence of caregiver			
Yes	22.39	5.15	0.017
No	20.28	5.12	
Type of caregiver			
Informal	23.11	4.64	0.629
Formal	22.21	5.29	
Number of caregivers			
One	22.13	5.69	0.432
Two	22.16	4.92	
Three	22.21	4.67	
Main caregiver			
Formal caregiver	23.22	5.65	0.155
Spouse	23.21	5.06	

Brother	23.00	2.82
Son	21.31	4.83
Daughter-in-law or son-in-law	19.66	10.69

*SD – Standard Deviation. Source: Research data, 2018

DISCUSSION

In this research, a moderate level of perceived stress was identified. Therefore, a convergent result was identified in an investigation carried out in the United States, which aimed to examine the relation between perceived stress, depression and neurological impairment in people living in the community, victims of EVA, who obtained a mean stress value of 22.23 (±9.50)[19] in the PSS-10.

The EVA is characterized as a sudden onset morbidity, in which the survivor suddenly transits to a situation of illness, in which a new routine of adjustments is installed, causing exacerbated concern and uncertainty about the future[20]. The comparison between the current situation and the previous EVA is quite common among the survivors. The perception of change in the routine and the inability to perform activities that were previously common can lead to a feeling of helplessness and stress[21].

When the stress lasts for a prolonged period, it often affects physical, social, and emotional aspects, which can contribute to the development of new diseases[22]. A longitudinal study conducted in the USA with adults and older adults identified that high levels of stress increase the risk of EVA, being considered as a risk factor for new episodes[22].

Among the factors associated with stress, the individuals who reported muscle weakness and mood disorder had higher levels of stress. Muscle weakness influences the performance of activities of daily living, compromising the functional capacity of the survivors[8,16]. The reduction in the perceived stress is associated with a decrease in the functional dependence of EVA survivors[8,16], which makes the insertion of these people in rehabilitation programs essential, in order to alleviate or eliminate their functional limitations.

Regarding mood disorder, a study conducted in Texas with EVA survivors found depression and negative emotions to be factors associated with high stress levels[23]. A survey conducted in Ribeirão Preto-SP also found a relationship between depression and stress in EVA survivors[16]. One third of the patients with EVA experience depression[19]; aspects of this morbidity such as depressed mood, fatigue, sadness or loss of interest and pleasure can cause pessimistic and helpless feelings, increasing stress levels[19,24].

The presence of a caregiver was another aspect associated with the high mean stress value. Dependence on help from others to carry out activities of daily living can cause a feeling of worthlessness and frustration[8,16]. The perception of changes in the routine and the inability to perform previously common activities raises stress levels, in addition to frequently compromising the autonomy and quality of life of people affected by EVA[21].

In this context, nurses and other health professionals who provide assistance to EVA victims must develop a care plan and include strategies that favor the adaptive process in the face of the changes resulting from this episode, such as training the victim and family members for self-care; encourage independence, without replacing the person in the activities in which he/she is autonomous; guiding in adapting the home, removing architectural barriers; and facilitating reintegration into the community[25], since reducing stress levels reflects positively on the quality of life of this population segment.

This study showed as one of its limitation the absence of associations between perceived stress and the level of functional impairment and the presence of comorbidities, since these variables may have influenced these results. Another limitation refers to its cross-sectional design, which does not allow for establishing a cause and effect relation among the variables. It is suggested to carry out research studies that investigate the relation between perceived stress and other variables not covered here, in addition to longitudinal research studies in order to investigate the impact of stress on the lives of people with EVA sequelae over time.

CONCLUSION

The results of this study demonstrated a significant relation between perceived stress and the muscle weakness, mood disorder, and presence of a caregiver variables. Stress level and its related factors must be tracked and monitored continuously, so that they are identified early and can assist health professionals in the development of a care plan that favors the rehabilitation and reintegration of these people into society, reducing the risk of a new EVA episode.

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