








## FUNCTIONAL CAPACITY AND STRESSFUL EVENTS IN ELDERLY POPULATION

### CAPACIDADE FUNCIONAL E EVENTOS ESTRESSORES EM IDOSOS

### CAPACIDAD FUNCIONAL Y ACONTECIMIENTOS ESTRESANTES EN PERSONAS MAYORES

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#### ABSTRACT

**Objective:** to relate the functional capacity and stressor events in older adults. **Method:** cross-sectional study with a quantitative approach conducted with 80 elderly patients treated at the outpatient clinic of a university hospital in João Pessoa, Paraíba, Brazil. Data collection was performed through interviews, and we used a semi-structured instrument for obtaining socio-demographic data, and the Barthel index and the inventory of stressful life events for the older adults. **Results:** we observed negative and statistically significant correlations ( $p \leq 0.05$ ) between the functional capacity scores and the number and intensity of stressful events experienced by the elderly patients. **Conclusion:** the experience of stressful events by the elderly patients acted negatively on functional capacity, causing damage to the autonomy and independence of these individuals.

**Keywords:** Aged; Activities of Daily Living; Stress, Psychological; Outpatient Clinics, Hospital; Comprehensive Health Care.

#### RESUMO

**Objetivo:** relacionar a capacidade funcional e os eventos estressores em pessoas idosas. **Método:** trata-se de estudo transversal, com abordagem quantitativa, realizado com 80 idosos atendidos no ambulatório de um hospital universitário em João Pessoa, Paraíba, Brasil. A coleta de dados foi realizada por meio de entrevista, um instrumento semiestruturado para obtenção de dados sociodemográficos, além do índice de Barthel e do inventário de eventos de vida estressantes para idosos. **Resultados:** foram observadas correlações negativas e com significância estatística ( $p \leq 0,05$ ) entre os escores da capacidade funcional e o número e intensidade dos eventos estressantes vivenciados pelos idosos. **Conclusão:** a vivência de eventos estressores pelos idosos atuou de forma negativa sobre a capacidade funcional, causando prejuízos para a autonomia e a independência desses indivíduos.

**Palavras-chave:** Idoso; Atividades Cotidianas; Estresse Psicológico; Ambulatório Hospitalar; Assistência Integral à Saúde.

#### RESUMEN

**Objetivo:** relacionar la capacidad funcional y los acontecimientos estresantes en ancianos. **Método:** estudio transversal con enfoque cuantitativo, realizado con 80 pacientes de edad avanzada tratados en la clínica ambulatoria de un hospital universitario de João Pessoa, Paraíba, Brasil. La recogida de datos se realizó a través de entrevistas, un instrumento semiestruturado para obtener datos sociodemográficos, así como el índice de Barthel y el inventario de acontecimientos vitales estresantes para los ancianos. **Resultados:** se observaron correlaciones negativas y estadísticamente significativas ( $p \leq 0,05$ ) entre los puntajes de capacidad funcional y el número e intensidad de acontecimientos estresantes vividos por los ancianos. **Conclusión:** la experiencia de acontecimientos estresantes por parte de los adultos mayores actuó negativamente en la capacidad funcional, causando daños a la autonomía y a la independencia de estos individuos.

**Palabras clave:** Anciano; Actividades Cotidianas; Estrés Psicológico; Servicio Ambulatorio en Hospital; Atención Integral de Salud.

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## INTRODUCTION

The life expectancy has increased in recent decades due to scientific and technological advances, a trend observed in both developed and developing countries, resulting in an increasing number of older adults.<sup>1</sup> The percentage of this population in Brazil had increased by 4% between 2004 and 2014, representing the fastest-growing age group in the country, estimating 18.6% for 2030 and 33.7% for 2060.<sup>2</sup>

Aging causes physiological changes that affect the main organs and systems and when associated with chronic non-communicable diseases, it can result in functional impairment.<sup>1</sup> Functional disability is characterized by the difficulty or need for help of the individual to perform daily tasks with two types: basic activities of daily living (BADL), related to self-care activities, and instrumental activities of daily living (IADL), related to the most complex activities performed daily, such as the ability to prepare meals, doing household chores, doing laundry, using money, making phone calls, taking medicines, shopping, and using the means of transportation.<sup>3,4</sup>

Functional impairment in the older adults represents an important factor for the reduction of social activities and the aggravation of clinical and cognitive diseases, directly influencing the quality of life and increasing the risk of hospitalization, institutionalization, and death.<sup>5</sup>

Disabilities can be a stressful event, as they cause more vulnerability and dependence on others.<sup>6</sup> Throughout life, older people are more susceptible than young adults to having health problems, chronic diseases, loss of friends or family, intrapsychic issues related to finitude, retirement, loss of relevant social roles, technological changes and traumatic situations.<sup>7</sup>

Stress happens when an event generates emotional distress, causing symptoms such as irritability, insomnia, fear, anger, anxiety, among others, becoming a problem with increasing dimensions, affecting men, women, the elderly, and children.<sup>8</sup> Each person experiences the event differently, so a particular event can be stressful for one, but not for the other, varying according to their assessment and according to the coping and adaptation strategies used in the potentially stressful situations.<sup>7</sup>

A multidimensional geriatric evaluation is essential for Nursing care to prevent health problems and indicate appropriate interventions for each individual. During a consultation with the nurse, besides detecting problems related to functional capacity, there is also the opportunity to identify stressors that may directly or indirectly interfere in the aging process, as well as the relationship of the elderly with stress and its consequences. One of the most effective interventions is problem-focused coping, trying to modify their relationship with the external environment and adapt their emotional response to situations that cause discomfort.<sup>9</sup>

Thus, this study can be justified due to the evidence of the great scarcity of scientific productions that address the

theme of functional capacity and stress in the elderly. Also, the results may contribute to the implementation of actions and strategies for health promotion of the elderly, focusing on the prevention and/or reduction of disabilities and stressful events and the improvement of quality of life.

This study aims to relate the functional capacity and stressor events in the elderly population.

## METHODOLOGY

This is a cross-sectional study with a quantitative approach, performed at the outpatient clinic of a university hospital located in the city of *João Pessoa, Paraíba, Brazil*. We investigated elderly patients assisted by spontaneous demand in the referred service.

The inclusion criteria were: age 60 years old or older and assisted at the institution's Geriatrics Outpatient Clinic during the data collection period. The elderly who presented aphasia, significant hearing loss, and cognitive deficits that prevented the comprehension of the interviews were excluded. The cognitive deficit was identified through the mini-mental state examination (MMSE), in which values below 24 are suggestive of cognitive impairment.<sup>10</sup>

The older people assisted during the period from February to July 2016 were 14,930. Initially, a pilot test was performed with 20 elderly patients to estimate the prevalence of the degree of functional capacity of the population, in which 19 ( $p = 95\%$ , 0.95) had no functional disability; that is, they were independent when evaluated by applying the Barthel index. Therefore, the sample size was defined using the finite population calculation with a 95% confidence interval ( $\alpha = 0.05$ , which gives  $Z_{0.05/2} = 1.96$ ), estimated prevalence of 95% ( $p = 0.95$ ) and margin of error of 5% (error = 0.05), totaling 73 elderly patients. However, the correction for potential loss of 10% was used, resulting in a sample of 80 participants.

Data collection was held between September and October 2016, through interviews, using a semi-structured instrument to obtain socio-demographic data, and the Barthel index and the Stressful Life Events Inventory (SLEI). The approach to the elderly patients occurred in the outpatient waiting room.

We evaluated the functional capacity using the Barthel index, as it is comprehensive, easy to apply, already validated in Brazil, and the most widely used worldwide to evaluate activities of daily living (ADL). This instrument identifies the level of care required by an individual who has some disability. We evaluated the functional independence through 10 tasks: feeding, bathing, clothing, personal hygiene, bowel elimination, bladder elimination, toilet use, bed chair moving, walking and stairs. The scores of each item ranged from zero, one and two, respectively, and the scores ranged from zero to 20, distributed

as follows: zero to four (very severe dependent), five to nine (severe dependent), 10 to 14 (moderate dependent), 15 to 19 (mild dependent) and 20 (independent).<sup>11</sup>

The stress perceived was measured using the SLEI with 31 items showing stressful events potentially experienced in the year before data collection. This instrument evaluates the frequency of stressful events and the stress level assigned by the respondent. The answers are given on a six-point scale, ranging from zero (the event did not happen) to five (extremely stressful).<sup>12</sup>

The Brazilian version of this inventory included the item “take more responsibility for the children” and changed the “death of a grandchild” to “death of the father or mother,” adding 32 items and maintaining the answer scale. When evaluating the intensity of stressful events, the events evaluated as “event did not happen” (zero scores) were not considered, we only considered scores from one to five. The total score is the sum of the stress assessment indices of all items.<sup>12</sup>

The collected data were typed and stored in the Microsoft Office Excel program, later imported into the Statistical Package for the Social Sciences (SPSS) version 22.0 and analyzed by descriptive and exploratory statistics. For the correlation between the variables, we used the Spearman correlation test as they are non-parametric variables. The significance level used was 0.05.

During the research, we complied with all ethical and legal aspects involving studies with human beings, advocated by Resolution 466/12 of the National Health Council (*Conselho Nacional de Saúde-CNS*). We sent the project to the Research Ethics Committee of *Hospital Universitário Lauro Wanderley*, under CAAE 58668516.4.0000.5183 and Opinion N° 2,846,225. We respected all the research processes, the principles of autonomy, privacy, and dignity by requesting participation in the research through the Informed Consent Form.

## RESULTS

Eighty elderly patients participated in this study. There was a higher prevalence of females (73.8%), aged between 60 and 69 years old (62.5%), living with a relative (91.3%), Catholics (48.8%), married or in a common-law marriage (51.3%), with complete elementary school level (58.8%), retired and with a monthly family income of up to one minimum wage (68.8%). Regarding functional capacity, 45 elderly patients (56.3%) showed mild dependence, which leads to impairment in at least one of the ADLs (Table 1).

The most frequent stressful events were the disease or health problem (70.0%), worsening of quality of life (57.5%), and decreased participation in activities they enjoy (52.5%) (Table 2). It was also observed that the elderly patients experienced, on average, 5.08 (SD = 2.903) stressful events in the last year.

Table 1 - Distribution of data regarding the functional capacity of the elderly patients assisted at a hospital outpatient clinic. *João Pessoa, Paraíba, Brazil, 2016*

Functional capacity	n	%
Very severe to moderate dependent	7	8.7
Mild dependent	45	56.3
Independent	28	35.0
<b>Total</b>	<b>80</b>	<b>100.0</b>

Table 2 - Distribution of stressful events experienced by the elderly patients assisted at a hospital outpatient clinic. *João Pessoa, Paraíba, Brazil*

Stressful events	n	%
Disease or health problem	56	70.0
Worsening of quality of life	46	57.5
Decreased participation in activities they enjoy	42	52.5
Worsening of the health or behavior of a family member	38	47.5
Death of a friend	34	42.5
Death of another close relative	32	40.0
Loss of purchasing/financial power	20	25.0
Worsening of the relationship with their children	20	25.0
Loss of a close friend due to moving or death	16	20.1
More responsibility with the children	15	18.8
Decreased responsibilities or hours at work	14	17.6
Experiencing a situation where they were misled or ridiculed	13	16.4
Divorce or Separation of Children	11	13.9
Moving to another house	11	13.9
Worsening of the relationship with the spouse	9	11.3
Loss of their things due to moving or other	9	11.3
Retirement	7	8.0
Death of father or mother	3	3.8
Memory loss	2	2.5
Marriage	2	2.5
Spouse's Retirement	2	2.5
Death of the spouse	1	1.3
Separation of the spouse	1	1.3
Increased responsibilities or hours at work	1	1.3
More responsibility assumed with the father/mother	1	1.3

Regarding the stress intensity, four events were experienced by the elderly patients as extremely stressful, representing the highest averages, such as memory loss, spouse's death, marriage, and more responsibility assumed with the father/mother (Table 3).

Table 4 shows the relationship between functional capacity scores and stressful events experienced by elderly patients, with negative and statistically significant correlations ( $p \leq 0.05$ ). In this sense, it is clear that as the number and intensity of stressor events increase, functional capacity decreases.

Table 3 - Intensity distribution of stressful events in the elderly patients assisted at a hospital outpatient clinic. *João Pessoa, Paraíba, Brazil*

Stressful events	n
Memory loss	5.00
Death of the spouse	5.00
Marriage	5.00
More responsibility assumed with father/mother	5.00
Worsening of the relationship with the spouse	4.44
Death of father or mother	4.33
Experiencing a situation where they were misled or ridiculed	3.69
Worsening of the relationship with their children	3.25
Loss of their things due to moving or other	3.11
Illness or health problem (fall)	3.07
Increased responsibilities or hours at work (even voluntary)	3.00
Spouse's Retirement	3.00
Divorce or Separation of their children	2.82
Loss of purchasing/financial power	2.65
Decreased responsibilities or hours at work (even voluntary)	2.57
Decreased participation in activities they enjoy	2.52
Worsening of the quality of life	2.41
Retirement	2.29
Worsening of the health or behavior of a family member	2.29
Death of another close relative	2.22
Death of a friend	2.15
More responsibility with the children	2.13
Loss of a close friend due to moving or death	1.88
Moving to another house	1.73
Separation of the spouse	1.00

Table 4 - Correlation between functional capacity and stressful events experienced by the elderly patients assisted at a hospital outpatient clinic. *João Pessoa, Paraíba, Brazil*

Stressful events	Functional capacity	
	r	p*
Number of events	-0.237	0.034
Intensity of the events	-0.243	0.030

\* Pearson's correlation coefficient.

## DISCUSSION

There was a predominance of elderly patients with mild dependence to perform ADLs. The reduction of the functional capacity can lead to limitations and dependence on people or specific equipment to perform essential daily tasks.<sup>6</sup> This condition causes damage to health, quality of life, self-care, and self-esteem, as decreasing the desire of living and the increased risk of falls, violence, and institutionalization.<sup>13</sup> In a study conducted in *Goiânia*, researchers identified functional

disability as the main factor related to the risk of falling, an important cause for increased dependence of the older people with damage to their functionality.<sup>14</sup>

The higher the age, the greater the proportion of people with impaired functional capacity, ranging from 2.8% for those aged 60 to 64, to 15.6% for those aged 75 and over.<sup>15</sup> This information shows that the young elderly patients in this study (60-69 years old) had a high rate of disability and dependence.

In this context, for the Nursing professional, the multidimensional evaluation of elderly patients is an important tool for the early identification of problems and potential health risks, such as their functional disability. This evaluation allows the planning of interventions focused on prevention of complications and treatment and rehabilitation of disabilities, seeking to promote the autonomy and independence of these individuals.<sup>6</sup>

In this study, one of the stressful events experienced by most elderly patients was the "disease or health problem." The process of illness has significant implications for the family, community, health system and the life of the individual showing the confrontation with a variety of stress-generating circumstances, such as consultations, exams, procedures, hospitalization, treatment of the disease, among others, which can contribute to the removal of activities and decreased welfare.<sup>16</sup>

The event of "worsen the quality of life" was also highlighted among the most stressful events for the elderly patient. Research conducted in the United States found that keeping elderly individuals in a healthy balance and ensuring a good quality of life are protective factors for full longevity, and they are certainly a challenge to public sectors, communities, health facilities, and families.<sup>17</sup> Thus, the elderly population needs health care to be focused on their reality and to be able to provide quality of life through the promotion of active and healthy aging.

The "decrease in participation in activities that they enjoy" was another stressful event in the evaluated sample. This data corroborates the results of research conducted with older people in Portugal, in which the interviewees showed incapacitated and useless because they could not perform the activities they previously performed naturally.<sup>18</sup> The change in the routine of activities can lead to a reduction social contact having wide repercussions on the lives of the elderly.<sup>19</sup>

Thus, the nurse needs to know the life history of these patients, to understand the real reason for the removal of their activities, so they can intervene with orientations, incentives to participate in elderly groups, enabling the exchange of experiences, performing common activities and developing skills such as singing, dancing, painting, playing, among others, favoring well-being and quality of life.

Regarding the intensity of stressful events, the "memory loss" was one of the items with the highest average. Memory is the ability to acquire, store and evoke knowledge and

information, and its alteration can change the life of the older adults in several aspects, such as loss of self-esteem, social isolation, and abandonment.<sup>20</sup> A study with 204 older adults showed a significant association between “complaints” of memory loss and perceived stress,<sup>21</sup> which could be explained by the fear of developing some dementia and losing control of the situations experienced.

The “death of the spouse” was the event with the highest average regarding the stress intensity, similar to research conducted in *Minas Gerais*.<sup>7</sup> The lack of control over this event is a factor leading the individual to stress since that little or almost nothing can be done to solve the problem.<sup>7</sup> Grief is a complex and painful process leading to feelings of sadness and despair and can also lead to more complex states such as depression or other associated illnesses.<sup>22</sup> The death of a partner has more than the suffering and the pain of loss because it can cause the individual to disbelieve about their existence.<sup>23</sup> At this moment, the nurse must respect the moment of grief. Whenever appropriate, the nurse must offer the social support that the elderly need, helping them to face this phase and to reorganize their life in the face of the event.

The item “marriage” was also among the most stressful events. The marital relationship is full of challenges: the projections made with the partner before marriage, the background of family experiences, behavior, family principles/values, unresolved frustrations, childhood conflicts, and so many other experiences. All these events can have repercussions on the marital relationship, leading to psychological-emotional suffering and, consequently, contributing to the wear and tear of the marriage bond.<sup>22</sup> Moreover, marriage can be seen as a stressor with factors such as violence for example because it is a situation that triggers various consequences in the individual’s life, undermines autonomy, destroys self-esteem and decreases quality of life, leading to serious damage to personal, family and social structuring.<sup>23</sup>

In the events with higher averages of intensity, the item “more responsibility assumed with the father/mother” brought great stress to the elderly patients. This data can be justified by the fact that, naturally, caring for an older person requires effort and dedication, a situation that is further enhanced in cases of elderly caregivers. Corroborating this finding, research reveals that older caregivers have higher rates of overload, stress, depressive symptoms, and less life satisfaction when compared to non-caregiver older people.<sup>24</sup>

Currently, the number of older adults assisted by other older adults is increasing, characterizing a worldwide trend that may be linked to family insufficiency, which is based on two defining elements: low social support and impaired family bond. An insufficient social network, added to financial difficulties or poor physical health, can lead to a tense life situation and contribute to the psychological suffering experienced by the elderly caregiver.<sup>19</sup>

This study was similar between the frequency and intensity of stressful events and functional capacity so that as the number and intensity of events increase, the functional capacity of the elderly decreases. In this sense, stress experienced for a long time can have deleterious effects on the functioning of the immune and cardiovascular system, considered a precursor of several diseases,<sup>9</sup> contributing to impaired functionality.

Functional impairment can be experienced as a stressor for elderly people and the incidence of stress at this stage of life is directly associated with the gradual onset of diseases and functional difficulties.<sup>25</sup> Thus, the perception of stressful events by the multi-professional team is necessary, especially the nurse who is in charge at all levels of health care with more possibilities of approaching the patient, to plan and implement specific programs and interventions that alleviate the stress experienced by the elderly population, aiming at preservation of their functional capacity.

## CONCLUSION

Most of the elderly patients investigated in this study had mild functional dependence and experienced significant stressor events over one year. A significant correlation was also found between the frequency and intensity of stressful events and functional capacity scores, indicating that the experience of stressful events acted negatively on functionality, causing damage to their autonomy and independence.

Thus, as a member of the health team, the nurse should know the reality of the older adults and the scenario in which they are inserted, covering physical, psychic, emotional and socio-demographic aspects to early identify the occurrence of stressful events in this population, and develop care aimed at strengthening coping strategies for stressful situations, contributing to the promotion of independence and preservation of the functional condition of this population.

It is essential to intervene directly in the functional capacity of these people to prevent conditions of dependence when performing activities, and the consequences of these facts. In this sense, the Nursing professional can develop different activities, including home visiting, effective guidance, necessary referrals, encouragement of healthy eating and lifestyle and the performance of physical activities.

The study design had a limitation as it does not allow affirming that the stressor event preceded the functional disability shown in the investigated elderly patients. Future research is expected to be conducted to clarify this relationship. Therefore, we suggest other studies on this theme and perspective to evaluate elderly residents in different Brazilian locations, with different socioeconomic and cultural realities.

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