

# FUNCTIONAL CAPACITY AND ASSOCIATION OF RISK CONDITIONS ON ELDERLY

*CAPACIDADE FUNCIONAL E ASSOCIAÇÃO DE CONDIÇÕES DE RISCO EM IDOSOS*

*CAPACIDAD FUNCIONAL Y ASOCIACIÓN DE CONDICIONES DE RIESGO EN PERSONAS MAYORES*

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## ABSTRACT

Assess functional capacity and the association of risk conditions in the elderly. Cross-sectional, descriptive study, carried out in the area covered by a Family Health Strategy, from June to November 2018, using a family risk classification instrument. Data were analyzed using SPSS® software. The sample was composed of 92 elderly people, with a predominance of females (69.57%) and an average age of 72.13±9 years. 8.6% were dependent on carrying out activities of daily living. The most prevalent risk conditions were elderly polypharmacy (9.14%) and repeated falls (8.06%), which showed a statistically significant level of association ( $p\text{-value}\leq 0.05$ ) with functional disability. A considerable prevalence of risk conditions with an impact on the functionality of the elderly was evidenced, which are often related, requiring a broader and more comprehensive view of the Family Health Strategy.

**Keywords:** *Health of the Elderly; Functional Status; Epidemiological Profile; Risk Factors; Family Health Strategy.*


## RESUMO


Avaliar a capacidade funcional e a associação de condições de risco em idosos. Estudo transversal, descritivo, realizado na área adscrita a uma Estratégia Saúde da Família, no período de junho a novembro de 2018, mediante aplicação de um instrumento de classificação de risco familiar. Os dados foram analisados no software SPSS®. A amostra foi composta por 92 idosos, com predomínio do sexo feminino (69,57%) e idade média de 72,13±9 anos. 8,6% apresentaram dependência para a realização das atividades de vida diária. As condições de risco mais prevalentes foram idosos polifarmácia (9,14%) e as quedas de repetição (8,06%), que apresentaram um nível de associação estatisticamente significativa ( $p\text{-valor}\leq 0,05$ ), com incapacidade funcional. Foi evidenciada uma prevalência considerável de condições de risco com impacto na funcionalidade dos idosos, que frequentemente se relacionam, necessitando de uma olhar mais amplo e integral da Estratégia Saúde da Família.


**Descritores:** *Saúde do Idoso; Status Funcional; Perfil Epidemiológico; Fatores de Risco; Estratégia Saúde da Família.*


## RESUMEN


Evaluar la capacidad funcional y la asociación de condiciones de riesgo en personas mayores. Estudio transversal y descriptivo, realizado en el área adscrita a una Estrategia de Salud de la Familia, en el período de junio a noviembre de 2018, mediante la aplicación de un instrumento de clasificación de riesgo familiar. Los datos fueron analizados con el software SPSS®. La muestra estuvo compuesta por 92 personas mayores, con predominio del sexo femenino (69,57%) y una edad promedio de 72,13±9 años. El 8,6% presentó dependencia para la realización de las actividades de la vida diaria. Las condiciones de riesgo más prevalentes fueron polifarmacia en personas mayores (9,14%) y caídas recurrentes (8,06%), que presentaron un nivel de asociación estadísticamente significativo (valor  $p\leq 0,05$ ) con la incapacidad funcional. Se evidenció una prevalencia considerable de condiciones de riesgo con impacto en la


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funcionalidad de las personas mayores, que frecuentemente se relacionan, requiriendo una visión más amplia e integral de la Estrategia de Salud de la Familia.

**Descriptor:** *Salud del Anciano; Estado Funcional; Perfil Epidemiológico; Factores de Riesgo; Estrategia de Salud de la Familia.*

## INTRODUCTION

In recent decades, Brazil has been experiencing a process of demographic transition, in which there is an inversion of its age pyramid, caused by the considerable increase in the elderly population, which is due to the reduction in the country's mortality and fertility rates<sup>1</sup>. According to the Brazilian Institute of Geography and Statistics (IBGE), the national life expectancy reached 76.50 years in 2019 and the projections for the number of elderly people aged 65 years and over will be equivalent to a proportion of 13.54% of the Brazilian population in the year 2030, causing a change in the sociodemographic profile of the nation<sup>2</sup>.

As a result of the increase in longevity and life expectancy, as a result of this unbridled process of demographic and epidemiological transition, a series of new challenges have arisen in the field of health, as aging is accompanied by a decline in physiological systems, attributing to the elderly a condition of greater vulnerability, installation of chronic diseases and functional disabilities, resulting in a greater need for the use of health services at all levels of care<sup>3</sup>.

A large portion of the elderly population is affected by chronic diseases that may be responsible for limitations in daily activities. Functional capacity is one of the markers of the health status of the elderly and its maintenance is essential for the preservation of the autonomy and independence of this population. Its decline is commonly related to a series of multifactorial conditions that predict risk to the elderly, causing dependence on the performance of activities of daily living, reduced quality of life, greater need for care, institutionalization and premature death<sup>4,5</sup>.

Primary Health Care (PHC) should be established as the center of health care for the elderly, and the professionals inserted in it have the role of ensuring care, health promotion and prevention of diseases and disabilities, in order to contribute to healthy aging and to improve the quality of life of this population<sup>3,6</sup>.

Several authors have seen the relevance of researching health risk conditions in community-dwelling older adults and how they relate to each other: Santos *et al.*<sup>7</sup> investigated the prevalence and factors associated with the risk of falls in older adults enrolled in a Basic Health Unit; Sales and Casotti<sup>8</sup> investigated the factors associated with polypharmacy; as well as Barbosa *et al.*<sup>9</sup> evaluated the prevalence of functional disabilities and the main correlated risk conditions. For Gaspar<sup>10</sup>, knowledge of the sociodemographic profile and health risk conditions are essential to guide the actions of health professionals.

In view of the significant global increase in the number of elderly people and in view of estimates for the progressive growth of this population, it is necessary for family health teams, as a practice of health surveillance, to observe the peculiar characteristics of their territory, in order to know the sociodemographic profile and investigate the

conditions that predict risk to this emerging population that, Due to mechanisms of senescence and senility, it has a greater state of physical and psychosocial vulnerability.

The knowledge of these factors and how they are related, in addition to collaborating with the obtaining of subsidies for the expansion and strengthening of scientific knowledge on this theme, is also relevant for the development of health strategies more focused on the main problems of the community and thus favoring an improvement in the health situation and quality of life of this expressive group of users of the Unified Health System.

In view of the above, the present study aimed to outline the sociodemographic profile and determine the prevalence of risk conditions and their correlation with functional disability to perform activities of daily living in older adults enrolled in a Family Health Strategy.

## **METHODS**

This is a cross-sectional, descriptive study, carried out in the area assigned to the Family Health Strategy working at the Raimundo Bezerra de Farias Basic Health Unit, located in the urban area of the Vila Alta neighborhood in the municipality of Crato-CE, from June to November 2018, where the studied population consisted of about 352 families distributed in a territory of four micro-areas. The sample size was determined using a 95% confidence interval and a sampling error of 5%, accounting for a total of 184 families.

Elderly people belonging to families in the coverage area of the Vila Alta II Family Health Strategy, who lived in micro-areas covered by a community health agent, were included, and registered families corresponding to closed houses and in which the elderly approached presented some cognitive or hearing difficulty, in the absence of a responsible person able to understand and answer the questionnaire applied, were excluded.

For data collection, the Family Risk Classification Instrument was applied, proposed and introduced in the set of management instruments for Primary Health Care in the state of Minas Gerais<sup>11</sup>, which is based on the Theory of Social Determination of the Health-Disease Process and makes use of clinical and socioeconomic information to determine family risk.

The clinical risk conditions evaluated consisted of eight items: dependence on activities of daily living, elderly polypharmacy (use of 5 or more drugs per day), coexistence of polyopathologies (at least 5 diagnoses), partial or total immobility, urinary or fecal incontinence, recurrent falls, cognitive disability and family insufficiency.

This research is an excerpt from a larger study, entitled Ecosystem Modeling for Health Surveillance in Primary Care, submitted and approved by the Ethics Committee of the Regional University of Cariri, under consolidated opinion No. 2,726,468. The present study complied with the norms for conducting research with human beings of Resolution No. 466/12 of the National Health Council. The subjects were previously informed and, if they agreed to participate, they were instructed to sign the Free and Informed Consent Form (ICF).

The collected information was analyzed using the Statistical Package for Social Science for Windows (SPSS) ® software, using a 95% confidence level to calculate the confidence interval (CI) of the established prevalences and Pearson's chi-square test to analyze the associations between the variables.

## RESULTS

A total of 186 families were interviewed, consisting of a sample of 92 elderly people, characterized by a predominance of females (69.57%), mean age of 72.13±9, age range of 60 to 100 years and aging index (EI) of 66.21. Table 1 describes the sociodemographic and socioeconomic profile of the geriatric population under study.

**Table 1. Sociodemographic profile of elderly people enrolled in a Family Health Strategy.**

Sociodemographic variables	n	%
<b>Sex</b>		
Female	64	69,57%
Male	28	30,43%
<b>Race</b>		
Brown	54	58,70%
White	29	31,52%
Black	8	8,70%
Asian (Yellow)	1	1,09%
<b>Education</b>		
Illiterate	23	25,00%
Literate	31	33,70%
Complete primary education	2	2,17%
Incomplete elementary education	26	28,26%
Complete high school	7	7,61%
Incomplete high school	0	0,00%
University education	3	3,26%
<b>Occupation</b>		
Self-Employed	6	6,52%
Retired	68	73,91%
From home	13	14,13%
Unemployed	4	4,35%
Formal worker	1	1,09%
<b>Family Income</b>		
< 1 salary	7	7,61%
1 salary	36	39,13%
>1 a 2 salaries	26	28,26%
> 2 salaries	23	25,00%

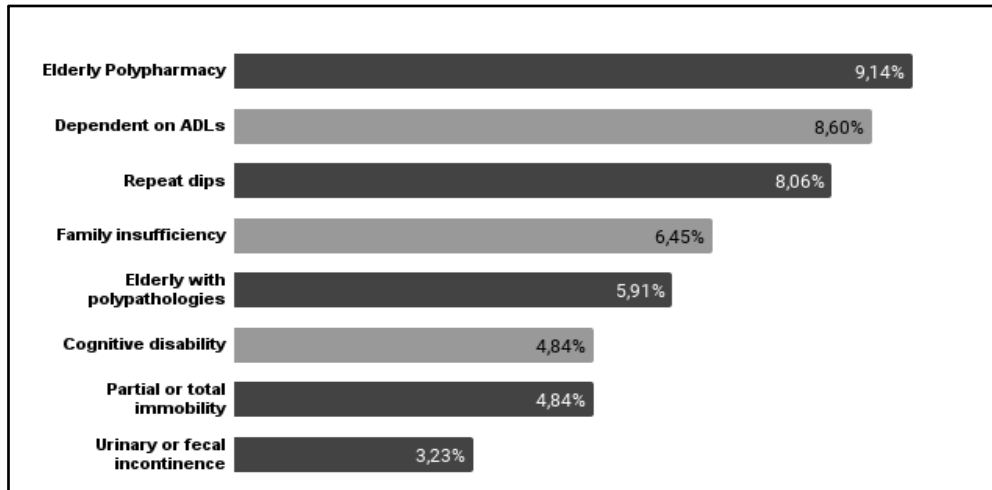
\*13.33% of the sample had a per capita family income < 125.00

**Source:** Survey data, 2018.

Graph 1 describes the prevalence of the risk conditions studied in the sample of older adults, in which a proportion of 24.19% had at least one clinical risk condition and 8.60% (95% CI: 5.4%-13.5%) had some degree of functional dependence to perform

activities of daily living. Among the most preponderant conditions, the following cases stood out, respectively: polypharmacy - 9.14% (95%CI: 5.8%-14.1%), recurrent falls - 8.06% (95%CI: 4.9%-12.9%), family insufficiency - 6.45% (95%CI: 3.7%-10.9%), concomitant polypathologies - 5.91% (95%CI: 3.3%-10.3%), cognitive disability - 4.64% (95%CI: 2.5%-8.9%), partial or total immobility - 4.64% (95%CI: 2.5%-8.9%) and urinary or fecal incontinence - 3.23% (95%CI: 1,4%-6,8%).

**Graph 1. Prevalence of risk conditions in older adults in a Family Health Strategy**



Source: Survey data, 2018.

The results shown in Table 2 show a statistically significant correlation ( $p \leq 0.05$ ) between functional disability in ADLs and the conditions of elderly patients: polypharmacy, recurrent falls, partial or total immobility, urinary or fecal incontinence, and cognitive disability. The statistically significant correlation between the variables studied suggests an important relationship between different risk situations or comorbidities in the elderly, enhancing their state of vulnerability. This highlights the importance of understanding and addressing not only isolated health conditions, but also their interactions and cumulative impacts on older adult health.

**Table 2. Association between dependence in activities of daily living and risk conditions**

Functional Incapacity	Risk Conditions	Level of Association (p-value)
Dependence to carry out activities of daily living (ADLs)	Elderly Polypharmacy	0,000*
	Repeat dips	0,000*
	Partial or total immobility	0,000*
	Urinary or fecal incontinence	0,002*
	Cognitive disability	0,000*
	Elderly with polypathologies	0,242
	Family insufficiency	0,972

Note: \* = statistically significant p-value ( $\leq 0.05$ ) for the Pearson Chi-square test

Source: Survey data, 2018.

## DISCUSSION

According to data from IBGE projections and estimates<sup>2</sup>, there was an increase in the aging index (EI) in Ceará from 28.41 in 2010 to 40.00 in 2019, pointing to an increase in longevity and growth in the elderly population, which was similarly observed in the present study, which showed a high EI (63.01) in the sample collected, exceeding the national average, indicating a high concentration of elderly people in the territory in relation to the young population up to 15 years of age. In addition, a considerable proportion of 21.71% (95% CI: 14%-31%) of older adults aged between 80 and 100 years was identified.

Regarding the characterization of the sample, a similar profile is frequently found in other studies conducted in the Brazilian Northeast<sup>7,10,12</sup>. The data of the present study are also in line with those described in the study carried out in the territory of a Family Health Strategy in the municipality of Sobral-CE, in which a high prevalence of long-lived elderly was evidenced, with a higher percentage of females, incomplete elementary education and monthly family income of one minimum wage<sup>6</sup>, corroborating the sociodemographic profile described here.

Among the risk conditions evaluated, the most prevalent was that of the elderly with polypharmacy (9.14%). The study by Faria *et al.*<sup>18</sup> evaluated the socioeconomic profile and health conditions of a group of elderly people, and identified a high prevalence of elderly polypharmacy, corroborating the results described here.

According to Carvalho *et al.*<sup>13</sup>, in recent decades, there has been a significant increase in geriatric cases of polypharmacy, with the presence of polyopathologies standing out among the causes, a condition that presented a prevalence of 5.91% in the present study. According to Ramos *et al.*<sup>15</sup>, the chronic use of multiple medications remains associated with a high rate of chronic non-communicable diseases, conditions that often manifest in overlap.

The unbridled use of a large number of medications, especially in the presence of associated comorbidities, can generate side effects, drug interactions, and problems in treatment adherence, which can increase the risk status of the elderly, especially in those who have some degree of functional dependence<sup>16,17</sup>.

A portion of 4.84% of the elderly evaluated had some type of cognitive disability, such as dementia, depression and delirium, which is often related to the use of psychoactive drugs, such as benzodiazepines and antidepressants, with their sedative and hypnotic effects that, according to Cunha<sup>19</sup>, are responsible for increasing the risk of falls, a condition that ranked third among the most prevalent in this study (8.06%).

In the research by Santos *et al.*<sup>7</sup> and Guerra<sup>20</sup> et al., a high prevalence of falls was evidenced in the elderly in communities linked to Basic Health Units. The occurrence of falls in elderly individuals, attributed to multifactorial circumstances that compromise postural stability, has become a public health problem due to the severe and impactful consequences it entails, being classified as the main cause of hospital admissions and mortality from direct and indirect causes among the elderly population and constituted as an indicator of regression in functional capacity<sup>7,14</sup>.

The study by Abreu *et al.*<sup>21</sup> showed a higher probability of falls in incontinent older adults and a strong association between these variables. In addition, the occurrence

of falls in elderly individuals is responsible for generating a series of physical and psychosocial barriers, which can restrict the elderly to bed and affect their functional capacity to perform activities of daily living (ADLs)<sup>22,23</sup>, a condition detected as the second most prevalent in the present study (8.60%) and which was significantly correlated with the occurrence of repeated falls ( $p < 0.001$ ).

In the study by Lopes<sup>24</sup>, which aimed to analyze the functionality of older adults enrolled in a Family Health Strategy Unit, it was observed that about 35% of the elderly had some type of dependence to perform activities of daily living (ADLs), and most of them had more evident functional impairment to perform instrumental activities of daily living. related to practical daily life and requiring greater skill and independence, compared to basic activities of daily living, which refer to self-care.

According to the data shown in Table 2, the condition of partial or total immobility was strongly related to dependence for ADLs ( $p < 0.001$ ). In addition to compromising functional capacity, this situation can lead to the onset of immobility syndrome, a set of signs and symptoms resulting from the restriction to bed or armchair for a prolonged period, which has physical and psychological implications, which lead to the progressive failure of all body systems, which can lead to death<sup>25</sup>.

The study by Fagundes<sup>26</sup> showed a significant association between the stage of dementia in the elderly and functional incapacity to perform activities of daily living, in line with what was observed in Table 2 ( $p < 0.001$ ). According to the same author, cognitive disabilities are among the most prevalent causes of loss of independence in the elderly, causing impairment of functional capacity in all areas of occupational performance and self-care, restricting social interaction and leisure and consequent reduction in quality of life.

Consubstantially, studies<sup>9,21,27</sup> show a higher frequency of dependence on basic activities of daily living in elderly people who presented urinary incontinence. These results corroborate those observed in the present study, which demonstrated a significant association between cases of incontinence and dependence to perform activities of daily living ( $p = 0.002$ ).

Continence is one of the basic activities of daily living evaluated in the Kartz geriatric scale and refers to the ability to control the elimination of urine and feces, and its dependence is characterized by the presence of total or partial incontinence of these functions<sup>28</sup>. This is a critical risk condition for the elderly, as it generates embarrassment and leads to social isolation, decreased self-esteem, as well as negatively influences the ability to perform instrumental activities of daily living<sup>9</sup>.

The possibility of performing basic and instrumental activities of daily living reflects the functional status of the elderly. In the study by Lopes<sup>24</sup>, a high prevalence of functional capacity limitation was evidenced among the elderly, and this condition should be highlighted by professionals working in primary care, since these disabilities, which progress during senescence and senility, directly affect the quality of life of the elderly population, family members and caregivers.

Research highlights the need to qualify care for the elderly by the Family Health Strategy (FHS), especially through the investigation of the main causes of functional disabilities and through the development of collective, multiprofessional and

multidimensional care strategies aimed at health care. It is also essential to act in the field of prevention and health promotion, based on actions that seek to maintain functional capacity, thus promoting the preservation of autonomy and quality of life of this growing population<sup>6,24,27</sup>.

Therefore, a study carried out in the state of Ceará describes the implementation of a Health Care service for the elderly<sup>29</sup>. This service, as well as the present one, carried out the clinical monitoring of chronic non-communicable diseases, evaluation of functionality, management of polypharmacy of the elderly, and adopted a multidisciplinary approach for the development of collective health promotion actions. These strategies aim to break with the traditional biomedical model, focusing on maintaining comprehensiveness and qualified care for the elderly, demonstrating a positive change in the approach to health, prioritizing their quality of life and autonomy<sup>6,24,29</sup>.

Limitation in functional capacity can affect the ability of the elderly to perform basic and instrumental activities of daily living, which can lead to a decrease in independence and autonomy. Health professionals in primary care should be aware of these limitations in order to develop appropriate care strategies, including guidance on adaptive activities and the development of rehabilitation programs. Results of meta-analysis reviews suggest that physically active older adults have a reduced risk of recurrent falls, disability in ADLs, and functional limitation and cognitive decline<sup>30</sup>. By identifying and addressing these issues early, it is possible to improve quality of life and promote a more active and healthy aging process in this growing population<sup>26,27</sup>.

## CONCLUSION

The study identified a great deal of agreement regarding the sociodemographic characterization of groups of elderly users of the SUS, similarly to other studies, showing a considerable prevalence of risk conditions that affect the functional capacity of the elderly and that often presented themselves in association, requiring a broader and more comprehensive look by the Family Health Team.

It is also worth mentioning that the clinical risk conditions that affect functional capacity, for the most part, are avoidable or changeable situations, subject to individual and collective interventions, of a multiprofessional and intersectoral scope, which aim to improve the health, quality and life expectancy of this constantly growing population.

Despite the evidenced results, the limitations of a cross-sectional design should be considered, but the study has the potential to identify sociodemographic patterns, in addition to highlighting the need for a comprehensive approach by the Family Health Team, which can be configured as a reference for conducting new research in the territory, in order to identify its peculiarities and priorities. thus contributing to the development of public health policies more focused on promoting healthier and more functional aging.

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