

# RIASE

REVISTA IBERO-AMERICANA DE SAÚDE E ENVELHECIMENTO  
REVISTA IBERO-AMERICANA DE SALUD Y ENVEJECIMIENTO

## **DEPRESSION AND FUNCTIONAL PERFORMANCE IN INSTITUTIONALIZED ELDERLY PEOPLE**

## **DEPRESSÃO E DESEMPENHO FUNCIONAL EM PESSOAS IDOSAS INSTITUCIONALIZADAS**

## **DEPRESIÓN Y DESEMPEÑO FUNCIONAL EN PERSONAS MAYORES INSTITUCIONALIZADAS**

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## ABSTRACT

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**Introduction:** The process of human aging attracts attention because it points to progressive psychophysical declines, such as functional performance and depressive symptoms, which can interfere with the Basic Activities of Daily Living of institutionalized elderly people.

**Objective:** To analyze the association between depression and functional performance in institutionalized elderly people.

**Methods:** Cross-sectional study with a quantitative approach, whose instruments used were the Elderly Health Record, Barthel Functioning Scale and Geriatric Depression Scale (GDS-15).

**Results:** The final sample was 223 elderly people living in Long-Term Institutions in the city of Natal/RN. Of the total sample, the presence of depression was observed to be more prevalent in females (48.4%); in the age group of 80 years or more (49.8%); non-white race (38.1%) and literate education level (35.4%). In all Basic Activities of Daily Living domains, the prevalence of levels of dependence associated with depression was observed, mainly for functional dependence on using the toilet (63.3%), climbing stairs (58.8%) and transferring from bed to chair (50.9%).

**Conclusion:** The prevalence of depressive symptoms and functional disability in the institutionalized elderly studied was 63.2% and 90.2%, respectively. The study found that the greater the level of dependence on Basic Activities of Daily Living, the lower the level of functional performance and the greater the chance of developing symptoms related to depression. Thus, the study was successful in its objective, as it showed that institutionalization leads to lower functionality and greater depression.

**Keywords:** Depression; Health of the Elderly; Health Services; Homes for the Aged; Physical Functional Performance.

## RESUMO

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**Introdução:** O processo inerente ao envelhecimento humano desperta atenção por apontar declínios psicofísicos progressivos, tais como desempenho funcional e sintomas depressivos, os quais podem interferir nas Atividades Básicas de Vida Diária da pessoa idosa institucionalizada.

**Objetivo:** analisar a associação entre depressão e desempenho funcional em pessoas idosas institucionalizadas.

**Métodos:** Estudo transversal com abordagem quantitativa, sendo utilizados com instrumentos a Caderneta de Saúde da Pessoa Idosa, Escala de Funcionalidade de Barthel e Escala de Depressão em Geriatria (GDS-15).

**Resultados:** A amostra final foi de 223 pessoas idosas residentes em Instituições de Longa Permanência no município de Natal/RN. Do total da amostra, observa-se a presença de depressão com maior prevalência no sexo feminino (48,4%); na faixa etária dos 80 anos ou mais (49,8%); raça não branca (38,1%) e com nível de escolaridade alfabetizado (35,4%). Em todos os domínios das Atividades Básicas de Vida Diária foi observada a prevalência de níveis de dependência associados à depressão, principalmente para a dependência funcional ao uso do vaso sanitário (63,3%), subir escadas (58,8%) e transferência da cama-cadeira (50,9%).

**Conclusão:** A prevalência de sintomas depressivos e incapacidade funcional nos idosos institucionalizados estudados foi de 63,2% e 90,2%, respectivamente. Verificou-se com o estudo que quanto maior for o nível de dependência para as Atividades Básicas de Vida Diária, menor será o nível de desempenho funcional e maior será a chance de se desenvolverem sintomas relacionados com a depressão. Assim, o estudo obteve êxito quanto ao seu objetivo, pois evidenciou que a institucionalização conduz a menor funcionalidade e maior quadro depressivo.

**Palavras-chave:** Depressão; Desempenho Físico Funcional; Instituição de Longa Permanência para Idosos; Saúde do Idoso; Serviços de Saúde.

## RESUMEN

**Introducción:** El proceso inherente al envejecimiento humano llama la atención por señalar declives psicofísicos progresivos, tales como el rendimiento funcional y los síntomas depresivos, los cuales pueden interferir en las Actividades Básicas de la Vida Diaria de las personas mayores institucionalizadas.

**Objetivo:** Analizar la asociación entre la depresión y el rendimiento funcional en ancianos institucionalizados.

**Métodos:** Estudio transversal con enfoque cuantitativo, cuyos instrumentos utilizados fueron la Libreta de Salud de la Persona Mayor, Escala de Funcionalidad de Barthel y Escala de Depresión en Geriatría (GDS-15).

**Resultados:** La muestra final consistió en 223 personas mayores residentes en Instituciones de Larga Permanencia en la ciudad de Natal/RN. De la muestra total, se observa la presencia de depresión con mayor prevalencia en el sexo femenino (48,4%); en el grupo de edad de 80 años o más (49,8%); raza no blanca (38,1%) y con nivel de educación alfabetizado (35,4%). En todos los dominios de las Actividades Básicas de la Vida Diaria, se observó la prevalencia de niveles de dependencia asociados con la depresión, principalmente para la dependencia funcional en el uso del inodoro (63,3%), subir escaleras (58,8%) y transferencia de cama-silla (50,9%).

**Conclusión:** La prevalencia de síntomas depresivos e impedimento funcional en las personas mayores institucionalizadas estudiadas fue del 63,2% y 90,2%, respectivamente. Se verificó

a través del estudio que cuanto mayor es el nivel de dependencia para las Actividades Básicas de la Vida Diaria, menor es el nivel de rendimiento funcional y mayor es la probabilidad de desarrollar síntomas relacionados con la depresión. Así, el estudio logró su objetivo, ya que evidenció que la institucionalización conduce a una menor funcionalidad y un mayor cuadro depresivo.

**Descriptores:** Depresión; Hogares para Ancianos; Rendimiento Físico Funcional; Salud del Anciano; Servicios de Salud.

## INTRODUCTION

Globally, the scenario of population aging has increasingly drawn attention by highlighting demographic trends with progressive variations in society, as well as demonstrating changes in the profile of health issues, thereby exposing challenging social issues. By the year 2050, it is estimated that the number of elderly individuals worldwide will reach two billion, representing 21.1% of the total population<sup>(1)</sup>. At the national level, a clear trend of age pyramid inversion can be observed, with 1980 marking the beginning of this shift<sup>(2)</sup>.

The process of human aging naturally leads us to reflect on changes in the perception and responsiveness of cognitive and sensory functions, a reduction in functional capacities, and the impact on greater social participation, interpersonal relationships, and family dynamics. These factors are challenging for society and especially for elderly individuals, who should have access to social and economic resources to assist them in achieving healthy and active aging, particularly those requiring specific care due to chronic illnesses<sup>(3)</sup>.

Furthermore, aspects related to the loss of members within their support network, the risk of loneliness, housing, financial income, and the aforementioned factors may lead institutionalization to become the only viable solution for these elderly individuals<sup>(4)</sup>. This occurs despite the legislative support provided by the National Policy for the Elderly (PNI), which ensures social rights for the elderly, creating conditions to promote their autonomy, integration, and active participation in society while reaffirming the right to health care at various levels within the Unified Health System (SUS). This policy assumes that the primary problem affecting the elderly is the loss of physical and mental abilities necessary to perform basic activities of daily living. In addition to the rights established by the PNI, Decree No. 1,948/96 ensures that elderly individuals also have access to Long-Term Care Institutions for the Elderly (ILPIs), which are designed as collective residences to meet the needs of those who seek them out<sup>(5)</sup>.

ILPIs are defined as “residential spaces for collective housing of individuals aged 60 years or older, with or without family support”<sup>(6)</sup>. They can be classified into three types: I – for independent elderly individuals; II – for those with partial functional dependency; and III – for those with full dependency requiring total assistance<sup>(6)</sup>. However, what could be seen as a solution has also become a cause for social concern, as many ILPIs are revealed to be environments resembling large dormitories, characterized by rigid rules, pre-determined routines, and a lack of advanced care options for their residents. This directly affects the physical and psychological health as well as the quality of life of institutionalized elderly individuals<sup>(7)</sup>.

In most cases, the institutionalization process for an elderly person triggers a series of other processes, such as the loss of motor and social functions, autonomy, and behavioral changes leading to isolation, illness, boredom, apathy, and even depression<sup>(8)</sup>.

Depression is understood as “a state of mood variations involving irritability, deep sadness, apathy, lack of energy, loss of the ability to feel pleasure, as well as cognitive, motor, and somatic changes”. Its multifactorial nature involves numerous biological, psychological, and social aspects<sup>(9)</sup>.

In addition to depressive symptoms, it is important to consider other consequences for the health and quality of life of the elderly, such as functional performance decline, limitations in physical activities, reduced mobility, social isolation, and loss of autonomy and independence for performing basic activities of daily living (BADLs)<sup>(10)</sup>. Based on the International Classification of Functioning (ICF), the term functionality encompasses body functions and structures, activity and social participation, and environmental factors. It refers to an individual's ability to care for themselves and perform social tasks and roles<sup>(11-12)</sup>.

In this context, to plan or reflect on intervention measures and/or the implementation of public policies aimed at improving the functionality and depression levels of elderly individuals residing in ILPIs, it is crucial to understand their stages of adaptation to institutionalization and the likely changes over time in their overall activity levels. However, there is still limited scientific evidence on this subject. Thus, the main objective of this study is to analyze the association between depression and functional performance in institutionalized elderly individuals, based on the following hypothesis: institutionalization will lead to a decrease in functionality levels and an increase in depression cases.

## MATERIALS AND METHODS

This is a cross-sectional study with a quantitative approach, part of the longitudinal and multicenter project of the International Research Network on Vulnerability, Health, Safety, and Quality of Life of the Elderly: Brazil, Portugal, Spain, and France. The study was conducted with elderly residents of Long-Term Care Institutions for the Elderly (ILPIs) in Natal, Rio Grande do Norte, Brazil.

The sampling process used a probabilistic method based on the sample size calculation for finite populations of elderly residents in LTCIs. The sample size was calculated using a 95% confidence level ( $Z = 1.96$ ), a sampling error ( $e = 0.05$ ), an estimated success proportion ( $P$ ) of 50%, and an expected error ( $Q$ ) of 50%, resulting in a sample size of 200 elderly individuals. A 10% loss margin was considered, leading to a final sample size of 223 institutionalized elderly individuals.

Inclusion criteria required participants to be 60 years or older and reside in an LTCI. Elderly individuals with clinical conditions that prevented their participation in the study, as determined by the researcher and LTCI professionals, were excluded.

Data collection took place between July and December 2023, conducted by trained volunteer researchers and undergraduate and graduate students.

Sociodemographic data were collected using the Elderly Health Handbook. Functional performance in basic activities of daily living (BADLs) was assessed using the Barthel Index<sup>(13)</sup>, which identifies individuals as dependent or independent in performing these activities. Depression was assessed using the 15-item Geriatric Depression Scale (GDS-15), a version validated for the Brazilian population<sup>(14)</sup>. This instrument comprises 15 items that evaluate life satisfaction, activity interruption, irritability, mood, isolation, energy, joy, and memory-related problems. The items are scored as zero or one, resulting in a score of up to 15 points, with depression being considered when the score is five points or higher.

All variables in this study were dichotomized and evaluated based on the presence or absence of depression. A descriptive analysis was performed using absolute and relative frequency distributions, and associations were analyzed using Pearson's chi-square test with a significance level of 5%. Data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 23.0.

This study was approved by the Research Ethics Committee of the Onofre Lopes University Hospital at the Federal University of Rio Grande do Norte, under opinion no. 4267762 and CAAE: 36278120.0.1001.5292. All participants who agreed to participate in the study, or their legal guardians, signed an Informed Consent Form (ICF).

## RESULTS

The study included 223 elderly individuals, of whom 160 (71.7%) were female and 63 (28.3%) were male, with a predominance of individuals aged 80 or older (73.5%,  $n = 164$ ). Most participants were non-white (55.6%). About half of the participants (53.8%) reported being unable to read or write (Table 1<sup>a</sup>).

Through this comparison, depression was observed to have a higher prevalence among females (48.4%), individuals aged 80 or older (49.8%), non-white individuals (38.1%), and those with a literate education level (35.4%). Data obtained through the association via the application of the Geriatric Depression Scale (GDS-15) are presented in Table 1<sup>a</sup> and show that the presence of depression was associated with literacy ( $p = 0.005$ ).

In the evaluation of the functional performance of institutionalized elderly individuals in basic activities of daily living (BADLs), a significant majority exhibited dependency (90.6%), particularly in toilet use (99.6%), stair climbing (82.4%), transferring from bed to chair (68.5%), and walking (65.0%). Furthermore, elderly individuals experiencing depression demonstrated elevated levels of dependency in these activities (Table 2<sup>a</sup>).

The analysis indicated a statistically significant association between the presence of depression and dependency in the execution of BADLs among institutionalized elderly individuals ( $p = 0.012$ ). Concerning specific activities, depression was significantly correlated with dependency in walking ( $p < 0.001$ ), urinary incontinence ( $p < 0.001$ ), dressing ( $p < 0.001$ ), bathing ( $p < 0.001$ ), personal hygiene ( $p < 0.001$ ), eating ( $p < 0.001$ ), and stair climbing ( $p = 0.006$ ). Notably, independence in evacuation was uniquely associated with the absence of depression in this population ( $p < 0.001$ ). Therefore, the findings underscore that depression is associated with increased dependency in the performance of BADL among elderly individuals residing in long-term care facilities (ILPIs).

## DISCUSSION

The present study demonstrates that, in terms of functionality, the subjects exhibited a greater dependence in performing basic activities of daily living (BADLs). This finding is particularly noteworthy given that institutionalization, as outlined in the National Policy on Integration of Older Persons (PNI), is intended to reduce dependence, alleviate depressive states, and maintain a favorable psychophysical profile. The initial hypothesis positing that institutionalization results in diminished functionality and increased depression has been substantiated.

The majority of participants in this study were female (71.7%), consistent with statistical data indicating that women generally have a longer life expectancy than men<sup>(15)</sup>, thereby reaffirming the phenomenon known as the “feminization of old age”. This trend is increasingly evident in Brazil and is accompanied by notable shifts in the epidemiological and caregiving profile<sup>(16)</sup>.

In the sampled population, a significant proportion (90.6%) of the elderly individuals exhibited changes on the Edinburgh Depression Scale (EDG-15), indicative of the presence of depressive symptoms. These findings align with other research that reported prevalence rates of depressive symptoms among institutionalized elderly individuals at 52.6% and 54.8%, respectively<sup>(17-18)</sup>. Moreover, depression should not be narrowly construed as merely a state of sadness or exclusively linked to aging; it is an affective disorder characterized by various manifestations, positioning it as a significant public health concern<sup>(19)</sup>.

Importantly, depressive symptoms may be linked to various factors, including the loss of autonomy, adherence to imposed routines, feelings of uselessness, distress stemming from uncertainty, loss of privacy, difficulties in forming social bonds, and the process of coping with losses<sup>(20)</sup>.

A detailed examination of the elderly population, derived from a sample of institutionalized individuals, revealed a higher prevalence of depressive symptoms among elderly women (48.4%). Previous studies corroborate this, indicating elevated rates of depression among elderly women at 35.9% and 64.7%, respectively<sup>(19-18)</sup>.

It is important to highlight the greater vulnerability of women to the development of depressive symptoms. As for possible explanations, there is a higher susceptibility to stressful events determined by social and gender roles, estrogen deprivation, and the fact that women, on average, live longer than men. This older age, in which the study presented a majority of elderly individuals aged 80 or older (49.8%), is associated with a higher incidence of chronic diseases, including depression<sup>(21)</sup>.



Regarding the level of education, the population in this research was predominantly composed of illiterate elderly individuals (53.8%), and of these, 31.8% exhibited depressive symptoms. This fact can be explained as a reflection of the traditional society of past centuries, where there was little emphasis on education, and the focus was on working for the family<sup>(22)</sup>. According to data from IBGE<sup>(16)</sup>, even with current literacy opportunities, elderly individuals with higher levels of education are still scarce in Brazil.

Depressive symptoms in the elderly can lead to functional impairments, making them more dependent in carrying out their daily activities<sup>(18)</sup>. Such evidence was observed in the study, as 90.6% of the elderly were dependent on activities of daily living (ADLs), and of these, 63.2% showed depressive symptoms. A study<sup>(23)</sup> with institutionalized elderly individuals found a higher number of people who were unable to perform their basic daily activities, especially those aged 80 or older, which supports the findings of the present study.

Furthermore, low functional performance or functional incapacity is directly related to the presence of depression. According to the authors, elderly individuals with depression exhibit greater physical, social, and functional impairments, affecting their quality of life, with a consequent reduction or loss of functional independence<sup>(24)</sup>.

Thus, it is crucial that the process of institutionalization includes steps that promote and ensure the integrity, privacy, and independence of elderly individuals. Long-Term Care Institutions (ILPIs) should provide and encourage their integration, as well as the implementation of new social paradigms and act as mediators of social support networks that contribute to improving the quality of life for their elderly residents.

## CONCLUSION

In light of the above, considering the scientific evidence and findings from the research conducted in Long-Term Care Institutions (ILPIs), it is noteworthy that the prevalence of depressive symptoms and functional incapacity in institutionalized elderly individuals was 63.2% and 90.2%, respectively. These percentages stand out as they reaffirm a problem that should be prioritized in public health management in Brazil and worldwide, where early detection of depressive symptoms is crucial to prevent the progression of the depressive condition, aiming for prevention so that its negative effects, especially in terms of functional performance, can be minimized.

The importance of the obtained results for multidisciplinary professional interventions from primary levels of care is also highlighted. As teams become more integrated, they develop greater potential for better situational management of the realities in each region, home, or territory regarding the aging process and diseases that may affect the elderly in the context of institutionalization. For instance, the expertise of professionals can make a difference by identifying the elderly's needs, reducing damage, and addressing difficulties to enhance their biopsychomotor abilities, thus promoting a higher quality of life.

Finally, it is important to note that, although this study represents a relevant sample of institutionalized elderly individuals in the main ILPIs of the city of Natal/RN, it remains limited due to the relatively short period of institutionalization investigated. Therefore, the results do not reflect the medium- and long-term impact of institutionalization. The characteristics of the institutions, especially the quantity and quality of services and care provided, were not thoroughly investigated, which would have been useful for cross-referencing with the findings in the various aspects studied. Therefore, it is believed that further research involving a larger and more diverse sample is needed to correlate the studied variables with greater precision.

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ND: Conceptualization, data analysis, original manuscript writing.

IS: Conceptualization, methodology, writing – review and editing.

MA: Supervision, writing – review and editing.

AT: Supervision, writing – review and editing.

RT: Supervision, writing – review and editing.

GT: Conceptualization, data analysis, supervision, writing – review and editing.

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Table 1 – Sociodemographic characterization of institutionalized elderly individuals according to depression. Natal, 2024.<sup>κκ</sup>

Sociodemographic variables		Depression		Total n (%)	p-value
		Yes n (%)	No n (%)		
Gender	Female	108 (48.4)	52 (23.3)	160 (71.7)	0.905
	Male	42 (18.8)	21 (9.4)	63 (28.3)	
Age group	60 to 79 years	39 (17.5)	20 (9.0)	59 (26.5)	0.824
	80 years or older	111 (49.8)	53 (23.8)	164 (73.5)	
Race	White	65 (29.1)	34 (15.4)	99 (44.4)	0.647
	Non-white	85 (38.1)	39 (17.5)	124 (55.6)	
Education	Literate	79 (35.4)	24 (10.8)	103 (46.2)	<b>0.005</b>
	Illiterate	71 (31.8)	49 (22.0)	120 (53.8)	

Table 2 – Functional performance in basic activities of daily living (BADL) of institutionalized elderly people according to depression. Natal, 2024.<sup>κ</sup>

Functional performance in BADL		Depression		Total n (%)	p-value
		Yes n (%)	No n (%)		
Total	Dependence	141 (63.2)	61 (27.4)	202 (90.6)	<b>0.012</b>
	Independence	9 (4.0)	12 (5.4)	21 (9.4)	
Toilet	Dependence	150 (67.3)	72 (32.3)	222 (99.6)	0.327*
	Independence	0 (0.0)	1 (0.4)	1 (0.4)	
Climbing Stairs	Dependence	130 (58.8)	52 (23.5)	182 (82.4)	0.006
	Independence	19 (8.6)	20 (9.0)	39 (17.6)	
Bed-to-Chair Transfer	Dependence	113 (50.9)	39 (17.6)	152 (68.5)	<b>0.001</b>
	Independence	36 (16.2)	34 (15.3)	70 (31.5)	
Walking	Dependence	111 (49.8)	34 (15.2)	145 (65.0)	<0.001
	Independence	39 (17.5)	39 (17.5)	78 (35.0)	
Urination	Dependence	103 (47.7)	32 (14.8)	135 (62.5)	<0.001
	Independence	41 (19.0)	40 (18.5)	81 (37.5)	
Dressing	Dependence	106 (47.7)	30 (13.5)	136 (61.3)	<0.001
	Independence	43 (19.4)	43 (19.4)	86 (38.7)	
Bathing	Dependence	105 (47.1)	27 (12.1)	132 (59.2)	<0.001
	Independence	45 (20.2)	46 (20.6)	91 (40.8)	
Personal Hygiene	Dependence	103 (46.2)	25 (11.2)	128 (57.4)	<0.001
	Independence	47 (21.1)	48 (21.5)	95 (42.6)	
Eating	Dependence	92 (41.3)	19 (8.5)	111 (49.8)	<0.001
	Independence	58 (26.0)	54 (24.2)	112 (50.2)	
Evacuation	Dependence	86 (38.7)	21 (9.5)	107 (48.2)	<0.001
	Independence	63 (28.4)	52 (23.4)	115 (51.8)	