



Aging and Functionality of the Institutionalized Elderly People of Alto Alentejo: Contributions to the Diagnosis of the Situation

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Abstract. The loss of functionality in aging process is a concern nowadays. We proposed to perform the diagnosis of the functionality of institutionalized elderly people in Portalegre city. We developed a quantitative, descriptive and transversal study with the application of three evaluation instruments (Elderly Nursing Core Set, Mini-Mental State Examination and Blessed Dementia Scale (BDS)). The sample consisted of 89 elderly people, with an average age of 86.6 years-old, most of them are female (71.9%), widowed (77.5%) and illiterate (51.7%). The average of years of institutionalization was 3.5. 45.3% showed cognitive deterioration, and 50% showed moderate to severe deficits on the BDS. It was also found that 7% of the older people had low weight and 79.4% were overweight. It was also found that 7% of them had low weight and 79.4% were overweight. 37% reported they have pain and more than 52% presented moderate to complete disability in daily life activities such as walking, washing, caring for body parts, excretion processes and dressing. However, less than 26% presented some deficiency in eating. Regarding environmental factors 88% of the elderly people reported having some kind of support from family and friends. We concluded that the sample presents functional deficits, including considered cognitive deficiencies, requiring intervention. Considering that the evaluation presented here was made before the pandemic period caused by Covid-19, it is important to re-evaluate this sample after the restrictions of social conviviality to assess the effect of the pandemic on functionality and rethink the model of care for the institutionalized elderly people.

Keywords: Aging · Functioning · Health of Institutionalized Elderly People · Long-term care

1 Introduction

The aging process combines different factors that determine its more or less accelerated evolution, such as heredity, environment, social context and individual lifestyles [1, 2]. It is marked by biological, physical, cognitive, psychological and social changes, and also generates huge implications for the person, especially those consequences related to functionality and quality of life [3].

We often associate the aging process with the entry of an older person into a residential structure for the elderly people. The institutionalization of the elderly people is multifactorial, highlighting issues related to the family (re)configuration, which sometimes does not have the capacity to care them full time, especially when the elderly person presents, in addition to an advanced age, a greater state of fragility, isolation, existence of multi-morbidities and, consequently, greater loss of functionality. Public policies for aging, which have been adopted, are clearly insufficient to keep the older people in their family, presenting institutionalization as an alternative to the family.

Their institutionalization, which often causes their distance from family and social life, associated with a more sedentary lifestyle, contributes to the loss of their autonomy, inhibiting the construction of new life projects. If we associate this with the existence of chronic diseases, functional changes may let the elderly people more dependent [4, 5]. Multi-morbidity significantly increases the risk of needing long-term care, with dementia and stroke being the most strongly correlated with this risk [6].

The functionality expresses a new paradigm in gerontology, focusing less on clinical specificities or on the number of existing chronic diseases, and more on the elderly people's abilities to deal with the challenges of daily life that allow them to perform a set of tasks aiming at their independence and autonomy [3]. Functional capacity refers to the potential of older adults to perform activities of daily life or to perform a specific act without needing help, which may include basic and instrumental activities [1]. There are some technological innovations that can assist them when they lose their functional capacity in carrying out some everyday activities [7].

Basic activities are the tasks of self-care, such as bathing, dressing and eating [8], the greater the number of difficulties that an elderly person has in satisfying his daily life activities, the more severe is his inability. Instrumental activities are the skills in managing the environment where a person lives, including the performance of domestic chores, the use of money or the ability to use public transport. The term functionality encompasses all body functions, the ability to perform activities and their participation in society [1], so the assessment of functionality must be multi-dimensional [6]. Conversely, functional disability can be understood as the inability or difficulty in performing daily activities related to physical, psychological, social, economic or resource health, which makes an independent life impossible [6].

Since this loss of functionality is a constant concern in our day-to-day lives, which requires a thorough knowledge of the current situation and which allows for in-depth

characterization and the formulation of proposed measures that may influence the adoption of public policies, at least of a nature regional, we proposed to carry out a diagnosis of the functionality of the institutionalized elderly people in residential structures for the elders in the municipality of Portalegre. This work aims to verify if there is a correlation between the functionality of older people and the length of stay in the Residential Structure.

2 Methodology

2.1 Study Design

When we talk about aging, we are often faced with situations where the older person is not always active or successful; we see the loss of functionality that occurs in a sphere of action that is often associated with several dimensions, including multi-morbidity. Thus, within the scope of the 4iE Project, we proposed to develop a quantitative, descriptive and transversal study that took place in this first part between December 2019 and January 2020.

2.2 Setting, Sample and Data Collection

In order to diagnose the functionality of the elderly residents in Residential Structures for Elders in the municipality of Portalegre, including cognitive assessment, a sample consisting of 89 elderly people, who lived in two organizations belonging to the district, was selected. The technological platform Miape [9] was used to insert data in two institutions in the district of Portalegre, Portugal.

Three assessment instruments were applied. The Mini-Mental State assesses cognitive function and was developed by Folstein et al. (1975) [10]. It consists of six groups of questions that assess temporal and spatial orientation, memory, attention and calculation, evocation, language and constructive skills [10].

The Blessed Dementia Scale (BDS) - was developed in 1968 by Blessed and colleagues [11], with the aim of quantifying the degree of intellectual and personality deterioration in older people. It consists of 22 items that reflect: changes in the performance of activities of daily living (8 items); changes in habits, including self-care (3 items) and changes in personality, interests and impulses (11 items). Information can be obtained from someone close to the person and it is related to their behavior in the last 6 months or through clinical records, if it is available. The quotation ranges from 0 to 28 and the higher the value, the greater the degree of functional deterioration. A cutoff score was established in which values below 4 indicate no deterioration, scores from 4 to 9 indicate mild impairment, scores above 10 suggest moderate to severe impairment [12]. Stern et al. (1987) [13] also suggests that values from 10 to 15 indicate moderate impairment and higher than 15 indicate severe impairment.

Regarding the Elderly Nursing Core Set (ENCS) – it evaluates the functionality and was designed from a set of items belonging to the International Classification of

Functionality specifically for the elderly population [14, 15]. It consists of 31 questions that were categorized on a Likert scale from 1 to 5 points. The higher the score, the worse the functionality profile [14]. The study to evaluate the psychometric characteristics of the ENCS indicated four domains: Self-care with 12 items: Washing (d510), Dressing (d540), Taking care of body parts (d520), Carrying out the daily routine (d230), Maintaining the position of the body (d415), moving using some type of equipment (d465), Walking (d450), Changing the basic position of the body (d410), Care related to excretion processes (d530), Eating (d550), Use of the hand and arm (d445), Drinking (d560); Learning and mental functions with 6 items “consciousness functions” (b110), “Orientation functions” (b114), “Attention functions” (b140), “Memory functions” (b144), “Emotional functions” (b152), “Higher level cognitive functions” (b164); Communication with 3 items Speak (d330), Conversation (d350) and Communicate and receive oral messages (d310) and Relationship with Friends and Caregivers with 4 items Family relationships (d760), Health professionals (e355), Personal care providers and assistants personal (e340) and Friends (e320) [15].

2.3 Data Analysis

The data were analyzed using the SPSS program (Version 25), with descriptive statistical techniques and Pearson’s correlation coefficient test in order to, on one hand, describe and summarize the information regarding the observed sample and, on the other hand, to measure the degree of association and the direction of correlation between two metric scale variables. Regarding ethical procedures, we wanted to observe the protection and respect for people, bearing in mind the Helsinki Declaration, among others. The project initially submitted by the University of Évora received approval from the Ethics Committee, in this case it was still authorized by the directors of the two organizations where the study took place. All questionnaires were applied by the nursing professionals who integrated them, after obtaining consent. All questionnaires were coded in order to guarantee confidentiality.

3 Results

The elderly people who live in the two ERPIs had an average age of 86.6 years-old, most of them are female (71.9%) and widowed (77.5%), presenting approximate values in both institutions A and B. It was found that 51.7% of these elderly people were illiterate, however in institution A, a higher frequency of elderly people who attended school emerged, only one in each institution attended higher education. It was also found that 7% of the elderly people were underweight and 79.4% were overweight.

With regard to the average number of years of institutionalization, it was 3.5 years, with a range between 0 months (newly admitted) and 82 months (about 7 years) (Fig. 1).

With regard to cognitive assessment, 45.3% showed deterioration (mini-mental state), with 50% exhibiting moderate to severe deficits on the Dementia scale.

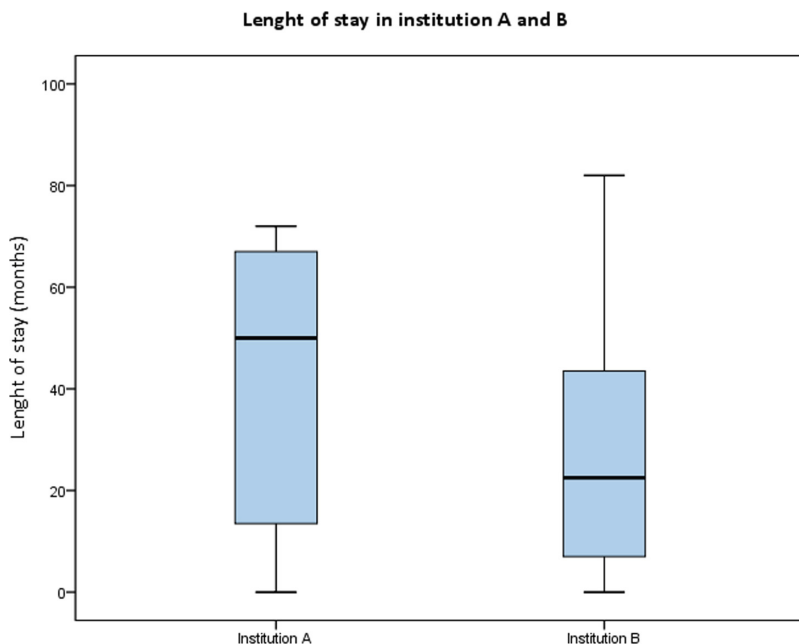


Fig. 1. Length of stay in institution A and B.

Regarding the BDS scale, we found that half of the sample presented between moderate impairment to severe (50%), with only 30% showing no impairment as shown in Table 1.

Table 1. Blessed dementia scale

BDS	Institution A		Institution B		Total (2 institutions)	
	n_i	%	n_i	%	n_i	%
Without impairment (<4)	1	5.00%	19	41.30%	20	30.30%
Mild impairment (4–9)	5	25.00%	8	17.39%	13	19.70%
Moderate impairment (10–15)	10	50.00%	11	23.91%	21	31.82%
Severe impairment (>15)	4	20.00%	8	17.39%	12	18.18%
Total	20	100%	46	≈100%	66	100%

With regard to functionality and self-care, 54% had moderate to severe disability in the ability to perform the daily routine, 52.8% had difficulty in changing the basic position of the body, 58.4% had difficulty in moderate to complete walking, with 48.3% still having difficulty in moving around using equipment. However, only 21% expressed difficulty in using their hands and arms. With regard to hygiene, 67.4% of the elderly people showed moderate to severe difficulty in washing, with 59.5% also having difficulty in dressing. Similar data were obtained in the care of excretion processes (52.8%). Regarding “Eating”, only 26% had severe to moderate disabilities, perhaps due to the difficulty of these elderly people in using hands and arms, also showing lower values.

As for Learning and Mental Functions, it was found that although the majority did not present changes in consciousness (55%), 41.9% manifested changes ranging from mild to severe deficiency in the orientation functions and 53.9% in the level of attention. These data are somewhat consistent with that found through the application of the BDS scale, previously mentioned. Communication, on the other hand, presents better results with 73% of the elderly people able to speak without disabilities and 63% also having a conversation along the same lines. With regard to the Relationship with Friends and Caregivers, it was found that about 98% of the elderly people received support from the family, between light support and punctual support. Also 88% received between one-off support and full support from friends.

If there are elderly people with different hospitalization times, we wanted to deepen their knowledge in order to check if there was a correlation between hospitalization time and functionality (Table 2). The results pointed out that there was no correlation.

Table 2. Correlation between length of stay and functionality

		Total of the ENCS scale	Length of stay
Total of the ENCS scale	Pearson’s correlation	1	0.007
	Sig. (Bilateral)		0.954
	N	89	79
Length of stay	Pearson’s correlation	0.007	1
	Sig. (Bilateral)	0.954	
	N	79	79

4 Discussion

With regard to sociodemographic characterization, the data in this study are identical to previous studies in the Portuguese population [16, 17], with the majority of the sample being female, which is due to the greater longevity of women to the detriment of men, according to data WHO [18]. Regarding marital status, as expected, considering the average age, most of them are widowed. In terms of education, most of the sample did not attend school nor know how to read or write, a factor that, on the one hand, is due to the difficulties in attending school when they were in school age and, on the other, it may relate to the type of institutions where the sample was collected.

By analyzing the sample's body mass index, and using the values recommended by the WHO as a reference [19], we found that the majority of the elderly population are overweight (62.35%), with 35.29% presenting obesity (BMI > 30). These data are in line with the results of other studies [20]. It is necessary to intervene since obesity is considered a public health problem, causing around 2.8 million deaths per year worldwide [20, 21].

Analyzing the results of the mini-mental, we found that 45.3% of the sample showed cognitive deterioration and with the analysis of the BDS we found that half of the sample has moderate to severe impairment (50%). Although it cannot be concluded that these 50% of elderly people have a diagnosis of dementia, as BDS only assesses cognitive and personality deterioration, it seems important to mention some international data. A systematic review of the literature reports that more than two thirds of residents in nursing homes have dementia [22]. One study found that from 33% to 50% of people with dementia in high-income countries are institutionalized [23]. In the United Kingdom, for example, this rate is much higher, with up to 80% of institutionalized elderly people estimated to have dementia [24]. A consistent conclusion in several studies, referred to in a meta-analysis [22] is that lower cognition is related to an increased risk of institutionalization.

With regard to the results of the Elderly Nursing Core Set, in the self-care domain, we found that the items "washing up" (average = 3.47) is the one with the worst results, with 56 elderly people with severe disability ($n_i=15$) to complete ($n_i=41$); followed by "taking care of body parts" (average = 3.31) with 49 elderly people with severe disability ($n_i=10$) to complete ($n_i=39$); "Dressing up" (average = 3.27) with 51 elderly people with severe disability ($n_i=11$) to complete ($n_i=40$); perform the daily routine (average = 2.97) with 39 elderly people with severe disability ($n_i=11$) to complete ($n_i=28$); and "walking" (average = 2.85) with 32 elderly people with severe disability ($n_i=13$) to complete ($n_i=19$). In the field of communication, in decreasing order of results regarding functional difficulties, there are the items "communicate and receive oral messages" (average = 2.12), "conversation" (average = 1.91) and "speaking" (average = 1.65).

In the domain of learning and mental functions, the item "higher level cognitive functions" (Average = 3.04) is the one that presents the worst results in functional terms, with 43 elderly people presenting severe disability ($n_i=10$) to complete ($n_i=33$); followed by "memory functions" (average = 2.46) and the item "emotional functions" (average = 1.85) is the one that presents the best functional results.

Regarding the results of ENCS, we find that similar data were obtained in other studies carried out in Portugal [16, 17]. Therefore, there is a high rate of dependency, requiring intervention, and the use of new technologies can be used as an adjunct to care.

Regarding the length of hospital stay, there was no relationship between this variable and functionality. We suggest that other studies relate these variables to a larger sample to clarify the results.

5 Conclusions

As in Europe, population aging is notorious and it has been associated with morbidities, especially in institutionalized elderly people. In this work, we proposed to carry out the

diagnosis in the context of two Residential Structures, concluding that the older people institutionalized there have presented functional deficits, which are mainly evident in the dimensions of Self-Care, Learning and Mental Functions, including cognitive impairment. In this first data collection, the length of stay and the increase in the functional deficit were not detected. But such data refer us to a care regime in waiting partially or totally compensatory, to be developed by caregivers. Perhaps because these structures are located in the interior of the country, and in the countryside, it was found that family and friendship support was still very present. However, since this evaluation was carried out before the Pandemic period caused by Covid-19 in Portugal, we think it is important to carry out a second evaluation with the old sample, in view of the restrictions of social interaction that prevailed in recent months. Such knowledge will be necessary to later promote reflection on the needs of these elderly people as well as on the reconfiguration of the care and monitoring model in the Residential Structures for the Elderly people.

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