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PROFILE OF INSTITUTIONALIZED OLDER ADULTS AND PREVALENCE OF MEDICATION USE

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ABSTRACT

Human aging occurs naturally and progressively and causes biological, mental and social changes in the elderly, directly affecting their health. Among the problems that can occur in the long-lived, the emergence of chronic non-communicable diseases stands out, which require the use of various medications and constant medical monitoring. These factors contribute to the decrease in the autonomy and independence of the long-lived. The objectives of this study were to determine the sociodemographic and institutionalization characteristics of the elderly living in a Long-Term Care Institution for the Elderly, to verify the medications used, and to identify the presence of polypharmacy. This is a retrospective, descriptive, cross-sectional study, with data from the medical records of elderly people institutionalized in a Long-Term Care Institution for the Elderly (LTCF), located in the city of Fortaleza/CE. The information was submitted to statistical analysis using the Microsoft Excel 2020® program and the work was approved by the Research Ethics Committee of the Federal University of Ceará with the opinion number 6.561.475. As a result, a sample composed entirely of women was obtained, with the age group between 80 and 89 years being the most recurrent. Most of the residents were single, white, had incomplete elementary school, came from the interior of the state, had some type of physical limitation and had no history of hospitalization in the last 2 years. They were institutionalized for a period of 1 to 5 years, had a source of income from retirement and for 41% of the residents, the main reason for institutionalization was the absence of close family members. Regarding comorbidities, the most prevalent were hypertension and diabetes mellitus. Polypharmacy was present in most medical records, with losartan, simvastatin, metformin and quetiapine being the most commonly used drugs by long-lived patients. The establishment of the profile of the elderly women and the knowledge of the prevalence of the most commonly used drugs in LTCFs was important, and these data can serve as a basis for the most appropriate planning of drug therapy.

Keywords: Polypharmacy. Elderly. Long-Term Care Institution for the Elderly.

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INTRODUCTION

The study of aging can be divided into human aging and population aging. The first occurs individually and privately, being the result of changes in the body. Population aging, on the other hand, is characterized by the process of demographic transition, in which the increase in life expectancy and the drop in birth and fertility rates are fundamental indicators (Cochar-Soares, Delinocente and Dati, 2021; Rachid and Bestetti, 2025).

During the human aging process, the individual goes through the phase of senescence and senility. The senescence phase represents a group of natural physiological changes resulting from aging and does not characterize disease. These changes affect the body's structures, functionality and biochemistry. While in the senility phase, pathological occurrences are preponderant and gradually affect the functioning of body systems, which can lead to death (Dantas and Santos, 2017; Souza and Quirino, 2021).

The phenomenon of senescence directly affects the health system, because as age advances, there are considerable increases in care expenses, especially in the last decades of life. These expenses are mainly linked to the emergence of chronic non-communicable diseases (NCDs), their medical and drug treatment (Torres *et al*., 2020, Dias *et al*., 2024).

Chronic non-communicable diseases (NCDs) are characterized by having a non-infectious origin and can cause, especially in the elderly, functional disabilities, loss of quality of life and premature mortality. They are represented by a set of diseases with multiple causes and several risk factors (Figueiredo, Ceccon and Figueiredo, 2021; Malta *et al.,* 2020). These factors can be classified as non-modifiable and behavioral. Non-modifiable factors include gender, age, and genetic inheritance, while behavioral factors include a sedentary lifestyle, poor diet, alcohol consumption, and obesity, both agents of which can be enhanced by socioeconomic, cultural, and environmental aspects (Sato *et al.,* 2017; Hobold and Bortoli, 2025).

NCDs are a public health problem in both developed and developing countries, and are considered one of the main causes of illness and death in the world (Sato *et al*., 2017; Simões *et al.,* 2021; Mendonça *et al*., 2024).

Functional decline, the presence of chronic diseases and the use of several medications concomitantly reduce the autonomy and independence of the long-lived, generating a demand for care and comprehensive attention, which compromise the

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permanence of the elderly in family life (Dutra *et al*., 2016; Rohde; Areosa, 2020). Faced with this reality, some families, because they do not know how to deal with the situation, lack of financial resources and the absence of a caregiver at home, choose to hospice their elderly in a Long-Term Care Institution for the Elderly (LTCF) (Freitas; Scheicher, 2010; Silva; Santos, 2010; Silva *et al*., 2019).

A Long-Term Care Institution for the elderly, according to the Resolution of the Collegiate Board (RDC n°283 of 26/09/2005), of the National Health Surveillance Agency (ANVISA), is a residential place, dedicated to the collective home of elderly individuals. These institutions may or may not be maintained by government agencies and should provide continuous assistance to the elderly, considering their emotional, physical and social well-being, in accordance with public policies related to the elderly (Camarano, Kanso, 2010; Brazil, 2021).

The recommendations for LTCFs is that they have a multidisciplinary team, composed of social workers, nurses and nursing technicians, doctors, nutritionists, physiotherapists and caregivers of the elderly. And, the cooperation of other professionals, such as pharmacists, speech therapists, and occupational therapists to maintain the good health status of residents (Sousa Filho *et al*., 2022; Silva *et al*., 2019).

However, most Brazilian LTCFs emerged spontaneously, without the presence of public policies and are maintained mainly through donations, which are not always sufficient to provide quality services (Gerlack *et al*., 2013; Camarano and Barbosa, 2016). And it is known that among the long-lived people who live in LTCFs, there are peculiar characteristics, such as a sedentary lifestyle, loneliness, loss of autonomy and independence, factors that contribute to the increase in comorbidities. And these comorbidities require permanent medical care, regular examinations, and ongoing drug therapy (Veras, 2006; Trindade *et al*., 2019).

In view of the complexity presented by these older adults, it is important to include activities relevant to pharmaceutical services in LTCFs, in order to ensure the safe use of medications (Gomes *et al*., 2024). Studies show that pharmaceutical professionals, in addition to increasing the effectiveness of treatments, are able to reduce the costs of drug therapy (Vieira, 2007; Pinto: Castro; Reis, 2013; Gomes *et al*., 2024).

Thus, it is important to establish the profile of the elderly living in LTCFs and the prevalence of medication use, as knowing the particularities of this population allows for a more appropriate planning of pharmacological treatment.

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In this context, the present study aimed to describe the sociodemographic and institutionalization characteristics of the elderly living in a Long-Term Care Institution for the Elderly in the city of Fortaleza/CE, to verify the medications used and to identify the presence of polypharmacy.

METHODOLOGY

This is a retrospective, descriptive, cross-sectional study, with data from the medical records of institutionalized older adults. The research was carried out in a Long-Term Care Institution for the Elderly (LTCF), located in the city of Fortaleza/CE.

The sample of this research consisted of the medical records of LTCF residents in the city of Fortaleza. All medical records of individuals aged 60 years or older and containing personal, clinical and medication data were included in the study.

The information collected was tabulated in Microsoft Excel 2020® and submitted to simple descriptive statistical analysis and presented in the form of tables.

This study followed the requirements established by Resolution No. 466 of the National Health Council (CNS) of the Ministry of Health, and was submitted to the Research Ethics Committee (CEP) of the Federal University of Ceará and approved under opinion number 6,561,475.

RESULTS

Of the 45 medical records filed at the LTCF, 39 were used to compose the study according to the inclusion criteria.

Regarding sociodemographic aspects, the entire study sample was composed of females (n=39; 100%), and there was a predominance of elderly women in the age group between 80 and 89 years (n=17; 43.6%). Most of the long-lived women (n=23; 59%) were declared to be white, 24 (61.5%) were single, 15 (38.4%) had not completed elementary school, and 22 (56.4%) were elderly from the interior of the state of Ceará (Table 1).

Table 1 – Sociodemographic and institutionalization characteristics of the elderly living in the LTCF

Variables	Absolute Frequency (n)	Relative frequency (%)
Sex		
Female	39	100
Male	0	0
Age Group (Age)		

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60-69	6	15,4
70-79	10	25,6
80-89	17	43,6
90 or more	6	15,4
Race		
Yellow	1	2,6
White	23	59
Negress	10	25,6
Brown	5	12,8
Marital status		
Single	24	61,5
Married	0	0
Divorced	3	7,7
Widower	12	30,8
Schooling		
Illiterate	8	20,5
Literate	3	7,7
Complete elementary school	4	10,3
Incomplete elementary school	15	38,4
Complete high school	7	18
Complete higher education	2	5,1
Naturalness		
Fortress	10	25,6
Interior	22	56,4
Other states	7	18
Total	**39**	**100**

Source: Survey data (2024).

Regarding institutionalization in the LTCF, it was observed that 41% of the elderly were institutionalized in the period from 1 to 5 years; for 41% of the residents, the reason for institutionalization was the absence of close family members and 76.9% had a source of income from retirement (Table 2).

Table 2 – Characteristics of the institutionalization of elderly residents in LTCFs

Variables	Absolute Frequency (n)	Relative frequency (%)
Time of institutionalization (years)		
Less than 1	4	10,3
1-5	16	41,0
6-10	5	12,8
11-15	2	5,1

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16-20	5	12,8
21 or more	7	18
Reason for institutionalization		
Family problems	6	15,4
No close family members	16	41
Self-will	11	28,2
LTCF Transfer	4	10,3
No information	2	5,1
Source of income		
Retirement	30	76,9
Receives benefit	4	10,3
Other	5	12,8
Total	**39**	**100**

Source: Survey data (2024).

Regarding lifestyle habits, the results show that before institutionalization, most of the elderly women (97.4%) did not smoke, in addition to 46.1% not using alcoholic beverages (Table 3).

Regarding health resources and physical health, when medical care was needed, 69.2% sought the public network and 28.2% the private network; 61.5% had some type of physical limitation; 74.3% had been hospitalized in the last year and 79.5% had not been hospitalized in the last 2 years, as shown in Table 3.

Table 3 – Characteristics of life habits, health resources and physical health of the elderly women living in the LTCF

Variables	Absolute Frequency (n)	Relative frequency (%)
Consumed alcoholic beverages		
Yes	9	23,1
No	18	46,1
No information	12	30,8
Smoking		
Yes	0	0
No	38	97,4
No information	1	2,6
Medical care		
Public network (SUS)	27	69,2
Private network	11	28,2
No information	1	2,6
Physical Limitation		
Yes	24	61,5

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No	15	38,5
Medical consultation in the last year		
Yes	29	74,3
No	9	23,1
No information	1	2,6
Hospitalization in the last 2 years		
Yes	6	15,4
No	31	79,5
No information	2	5,1
Total	**39**	**100**

Source: Survey data (2024).

Table 4 shows the main types of comorbidity present in LTCFs, and 19 (48.7%) elderly women had hypertension, 9 (23.1%) had diabetes *mellitus*, 11 (28.2%) had psychiatric diseases, and 15 (38.5%) had dyslipidemias. Other health conditions were also found in the medical records, but they were not included in the analysis because they presented high diversity with low frequency.

Table 4 - Percentage of elderly women living in LTCFs with or without comorbidities.

Variables	Absolute Frequency (n)	Relative frequency (%)
Hypertension		
Yes	19	48,7
No	20	51,3
Dyslipidemia		
Yes	15	38,5
No	24	61,5
Psychiatric illness (Depression and/or Schizophrenia and/or Alzheimer's)		
Yes	11	28,2
No	28	71,8
Diabetes		
Yes	9	23,1
No	30	76,9
Total	**39**	**100**

Source: Survey data (2024).

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Regarding the number of medications used, a total of 55 prescription medications were found. Each elderly woman used an average of 5.74 medications, with a minimum of three (3) and a maximum of nine (9).

The drugs most used by the residents were: Losartan (10.74%), Simvastatin (6.71%), Metformin (6.04%), Quetiapine (6.04%), Amlopidine (4.7%), and Hydrochlorothiazide (4.7%). Medicines based on medicinal plants were grouped into a single category (n=3), as described in Table 5.

Table 5 – Frequency of medication use (n=149) found in the 39 medical records

Medicines	Absolute Frequency (n)	Relative frequency (%)
Losartan	16	10,74
Simvastatin	10	6,71
Metformin	9	6,04
Quetiapine	9	6,04
Amlodipine	7	4,70
Hydrochlorothiazide	7	4,70
Risperidone	6	4,02
Acetylsalicylic acid	6	4,02
Omeprazole	6	4,02
Citalopram	4	2,68
Amitriptyline	4	2,68
Sertraline	4	2,68
Gliclazide	4	2,68
Levothyroxine Sodium	4	2,68
Sodium Valproate	4	2,68
Diosmin + Hesperidin	3	2,01
Herbal medicines	3	2,01
Atenolol	2	1,34
Carbamazepine	2	1,34
Clonazepam	2	1,34
Oxybutynin	2	1,34
Domperidone	2	1,34
Gabapentin	2	1,34
Pregabalin	2	1,34
Alendronate	1	0,67
Alogliptin	1	0,67
Atorvastatin	1	0,67
Baclofen	1	0,67
Galantamine	1	0,67
Caverdilol	1	0,67
Cilostazol	1	0,67
Fluoxetine	1	0,67
Memantine	1	0,67
Promethazine	1	0,67
Propranolol	1	0,67
Trazodone	1	0,67
Venlafaxine	1	0,67
Dapagliflozin	1	0,67
Dexlansoprazole	1	0,67
Esomeprazole	1	0,67

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Spironolactone	1	0,67
Phenytoin	1	0,67
Flunarizine	1	0,67
Furosemide	1	0,67
Levodopa+Benserazide Hydrochloride	1	0,67
Lorazepam	1	0,67
Enalapril	1	0,67
Mirtazapine	1	0,67
Pantoprazole	1	0,67
Paroxetine	1	0,67
Rosuvastatin	1	0,67
Glucosamine Sulfate + Chondroitin Sulfate	1	0,67
Valsartan + Hydrochloratiates	1	0,67
Total	**149**	**100**

Source: Survey data (2024).

Regarding polypharmacy, it was used by 53.8% (n = 21) of the elderly women, demonstrating that most of the institutionalized women were using four or more medications simultaneously (Table 6).

Table 6 – Frequency of medication use and presence of polypharmacy found in the medical records of elderly women living in LTCFs (n = 39).

Variables	Absolute Frequency (n)	Relative frequency (%)
Frequency of medication use by elderly women/medical records		
Do not use	5	12,8
1	3	7,7
2	6	15,4
3	4	10,2
4	7	17,9
5 or more	14	35,9
Polypharmacy (n≥4)		
Yes	21	53,8
No	18	46,1
Total	39	100

Source: Survey data (2024).

DISCUSSION

In this study, sociodemographic, institutionalization, and health aspects were evaluated, as well as the profile of drug therapy of the elderly in an LTCF in Fortaleza. Although the institution is composed only of women, it was possible to observe that the predominant public in Brazilian LTCFs is female, as shown by several studies carried out in different LTCFs throughout Brazil (Barbosa *et al.,* 2020; Rosa and Urbanetto, 2021; Rocha *et al.,* 2022). The predominance of females can be explained by the fact that women have

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a higher life expectancy due to less exposure to factors such as smoking and alcohol intake and because they take greater care of their health (Azevedo *et al.,* 2017).

In the investigated sample, there was a predominance of older elderly women in the age group of 80 to 89 years. A similar result was found in a survey carried out in several LTCFs in the city of Natal, in which the majority (51.5%) of the elderly women belonged to the same age group (Barbosa *et al.,* 2020).

Regarding marital status, the Brazilian literature indicates a predominance of single institutionalized individuals, similar to what was observed in the present study. It should be noted that the absence of a spouse can be one of the triggering factors for institutionalization (Bernardes *et al*., 2021; Rocha *et al*., 2022).

Regarding the level of education, a high frequency of long-lived women who were unable to complete elementary school was observed. This fact can be justified by the old cultural and social values, in which women were mainly responsible for domestic work and had little or no access to education. In general, the low educational level predominates in research involving the elderly, especially among women, considering that the long-lived of today lived their childhood at a time when teaching was not considered a priority. In addition, the financial situation and the difficult access to the educational system in rural areas can also be seen as impacting factors on the level of education (Fluetti *et al*., 2018; Güths *et al*., 2017).

With regard to place of birth, the data obtained were similar to those found in the literature, in which most institutionalized individuals were born in rural areas (Galhardo, Mariosa, Takata, 2010). Some authors point out that this reality can be explained by the occurrence of the migratory process from the countryside to the city over time (Nunes, Menezes, Alchieri, 2010).

Regarding their stay in the institution, most of the elderly women (41%) lived between 1 and 5 years. This finding was similar to that found by Murakami and Scattolin (2010), in which 42.9% of the individuals lived in the institution in the same period.

Regarding the reason for institutionalization, the absence of the family member was the main reason for institutionalization. In a study carried out in an LTCF in Maceió/AL, the authors observed that 80% of the elderly had a fragile or nonexistent family relationship (Santos, Ary, and Calheiros, 2021).

The unavailability of a family member who agrees to play the role of caregiver is the main cause of the transfer of elderly people to Long-Term Care Institutions for the Elderly

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(Davim *et al.,* 2004). It is believed that family ties are essential for healthier aging and that their absence can lead to feelings of abandonment, leading to increased anxiety, loneliness, and depression (Santos *et al*., 2019; Carrilho, 2023).

Another aspect found was that most of the elderly women were retired (76.9%). A similar result was observed in the study by Rocha et al. (2022), in which ninety percent (90%) of the institutionalized long-lived were retired. Retirement is characterized as being the main source of income for institutions, which are allowed to use up to 70% of the income of the long-lived, according to the Statute of the Elderly (Roquete, Batista, Arantes, 2017; Giacomin, 2022).

Regarding the use of alcoholic beverages (46.1%), the results were similar to the work by Dias (2021), who analyzed the pharmacoepidemiological profile of elderly individuals in Campo Grande/MS and showed that most individuals had never drunk.

Regarding smoking, the results showed that most of the long-lived women did not smoke. In a study conducted in the Federal District, it was observed that, of the total number of institutionalized individuals, only 25.7% were smokers, 22.8% were men, and only 2.9% were women (Carvalho *et al.,* 2013). The scenario of the present study can be explained by the influence of historical and sociocultural precedents since smoking first spread among men, becoming common among both sexes only after World War II (Zaitune *et al.,* 2012).

Regarding medical care, 69.2% of the elderly women were assisted by public service. The results are in line with the research by Lacerda *et al*. (2017), as 43.3% of residents in philanthropic institutions were assisted by the public service, 18.3% by the private service, and 36.7% in a mixed way, with the SUS being the main place of care for institutionalized older adults.

Regarding physical disability, 61.5% of the long-lived women had some limitation. The result was similar to the work developed in a philanthropic LTCF in a city in the interior of Rio Grande do Sul, in which it was found that 48 elderly people (71.74%) were dependent on activities of daily living (Silva *et al*., 2019).

As for medical consultations in the last year, 74.3% of the long-lived women had medical care. This finding corroborates what was contained in the consulted publications, which show that a large portion of the elderly population had had a consultation in the last twelve months (Carneiro *et al*., 2016; Tavares *et al*., 2021).

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Regarding hospitalization in recent years, most elderly women were not hospitalized (79.5%). A similar result was found in the work by Pazinatto *et al*. (2022), in which the percentage of long-lived people without medical hospitalization was 68%.

According to the literature, older adults living in LTCFs have a higher prevalence of chronic diseases than non-institutionalized individuals, with systemic arterial hypertension (SAH) being the most prevalent (Francio *et al*., 2020). This statement corroborates the findings of the present study since, among the chronic diseases identified in the sample, SAH was the most recurrent, being present in 48.7% of the elderly women. Similar results were observed in a study carried out with 10 LTCFs in the city of Natal, in which 48.9% of the long-lived patients had SAH (Moreira *et al*., 2020).

According to the health conditions found (hypertension, type 2 diabetes, psychiatric diseases, and dyslipidemias), the drugs most used by the elderly women were Losartan (10.74%), Simvastatin (6.71%), Metformin (6.04%), and Quetiapine (6.04%). These results were similar to those found in several studies carried out with long-lived individuals, which revealed that these drugs were among the most consumed by individuals in this age group (Santos *et al*., 2020; Camacho, Carvalho, Marini, 2023; Viana *et al*., 2023).

In populations at high cardiovascular risk, such as the elderly and those with comorbidities, angiotensin II receptor blockers, such as losartan, promote a decrease in cardiovascular morbidity and mortality, in addition to having a superior cerebrovascular protective effect than other antihypertensive drugs, thus justifying the high prescription of this drug class (Maia and Freitas, 2021).

Simvastatin is often used among the elderly because it is the first choice in the treatment of dyslipidemias. In addition, statins can also act safely and effectively in the primary prevention of cardiovascular diseases, thus reducing the risk of cardiovascular events (Farias *et al*., 2021; Miranda, Ramos and Cavalcante, 2024; Santos *et al*., 2021).

Among the hypoglycemic medications, metformin was the most prevalent. The high consumption of this drug is probably related to the current therapeutic approaches for type 2 diabetes (DM2), which establishes this drug class (biguanides) as the first therapy (Oliveira *et al.,* 2021).

In the present study, quetiapine was the most used drug for psychiatric diseases, and this result corroborates data from the publications of Gontijo *et al*. (2020) and Mascarelo *et al*. (2021). Although it has been introduced as an effective atypical antipsychotic for schizophrenia, quetiapine has been gradually used in a variety of

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psychiatric states and diseases over the past 20 years, the most frequent conditions being: mood and anxiety disorders, aggression, hostility, post-traumatic stress disorder, borderline personality disorder, delirium, substance abuse, and insomnia (Caixeta *et al*., 2023).

In general, atypical antipsychotics are well tolerated by long-lived people when their use presents low risks of extrapyramidal effects, metabolic disorders, and weight gain. Despite this, it is important to use them with caution and in low doses since the physiological changes resulting from aging can prolong the effects of the drug and increase susceptibility to adverse effects (Fulone, Silva, and Lopes, 2023).

Polypharmacy is defined as the consumption of five or more medications a day (Licoviski *et al*., 2025). This study showed that the elderly women ingested an average of 5.74 drugs, a frequency observed in some LTCFs located in the state of São Paulo, where the average daily consumption was 5.7 drugs per resident (Lima *et al.*, 2017). Although the mean found in this study can be considered high, it is still lower than that of other authors, such as the study by Sandri *et al.* (2016) and Lima (2020), whose average daily medication consumption was 8.72 and 11.9, respectively.

Polypharmacy is a worrying fact, as it is associated with an increase in adverse reactions, drug interactions, and medication errors, in addition to contributing negatively to treatment adherence (Silva *et al*., 2019).

Regarding the limitations of the research, the cross-sectional nature of the study was carried out (which did not allow us to infer a causal relationship between the variables studied), and the use of a sample restricted to an LTCF, which does not allow the generalization of the results.

CONCLUSION

The practice of polypharmacy was evidenced in the LTCF, with 53.8% of the elderly women using multiple medications. The mean age of the residents was 81.1 years, composed mainly of long-lived Caucasians, with incomplete elementary education, from the interior of the state, with some type of physical limitation and no history of hospitalization in the last 2 years. They had a source of income from retirement, were institutionalized because they did not have family members to care for them, and had been in the LTCF for 1 to 5 years. The main chronic diseases identified were systemic arterial hypertension (SAH), dyslipidemias, psychiatric diseases, and diabetes, with SAH being the

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most frequent chronic problem. The most commonly used drugs in LTCFs were losartan, simvastatin, and metformin, agreeing with the observed NCDs.

The results of this study contribute to the determination of the profile of this population and can serve as a basis for the planning of individualized drug therapy in elderly women in LTCFs.

It is important to highlight the need to carry out additional studies in other LTCFs, adding other variables, such as the cognitive, nutritional, and family status of the long-lived person and the working conditions, environment, and infrastructure of the LTCF, in order to have an integrated characterization.

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